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Textile World

VOL. 87, NO. 13—ESTABLISHED 1868

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TEXTILE WORLD

(Formerly *Textile World Journal*) with which are combined *Textiles, Possell's Textile Journal* and *Textile Advance News*. Published monthly. United States and Possessions, and Canada, $3 per year; all other countries, $5. U. S. currency or 20 shillings. Single copy, 35 cents, excepting special issues.

Of this issue 13,443 copies were printed

Member of Audit Bureau of Circulations
Member of Associated Business Papers, Inc.

McGRAW-HILL PUBLISHING CO., INC.
330 West 42d Street, New York, N. Y.

James H. McGraw, Jr., *President* — Howard Ehrlich, *Executive Vice-Pres.* — James H. McGraw, *Honorary Chairman* — Mason Britton, *Vice-Chairman*
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Boston.....1427 Statler Bldg. — Greenville, S. C.....512 Woodside Bldg.
Philadelphia.....16 South Broad St. — Atlanta.....1105 Rhodes-Haverty Bldg.
Washington.....National Press Bldg. — Chicago.....550 N. Michigan Ave.

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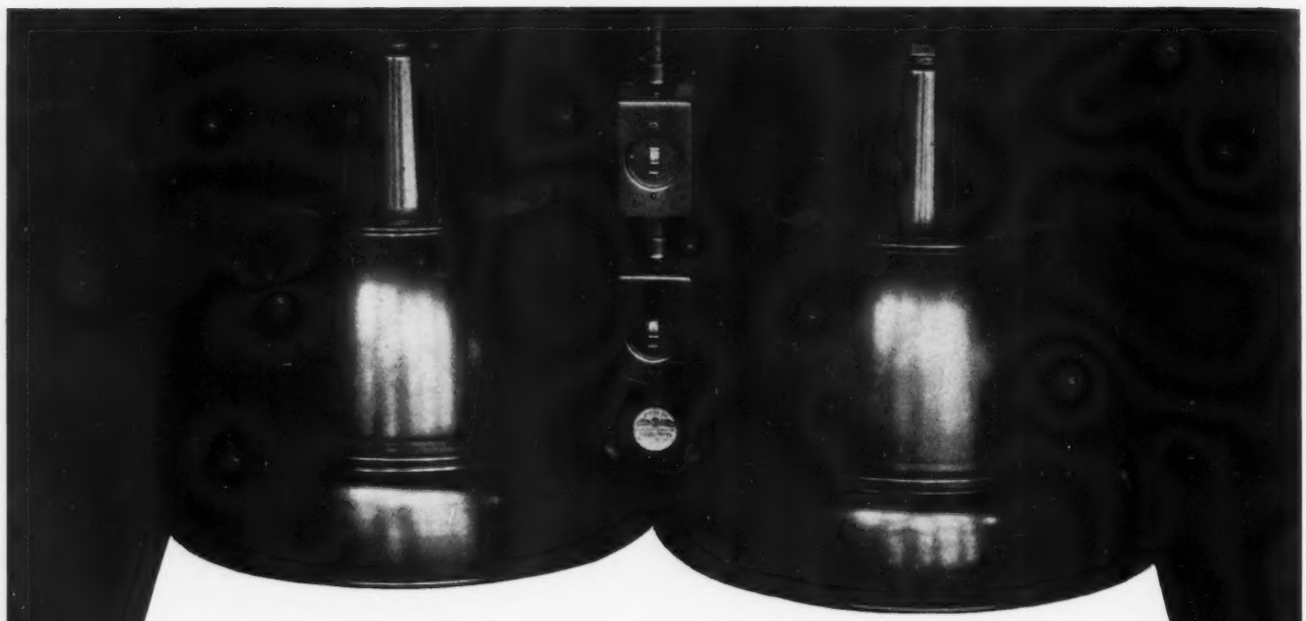

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Textile World
December, 1937
Editor: DOUGLAS G. WOOLF

Mr. Davenport's Silly Symphony

THE latest attack on the southern cotton textile industry—the article by Walter Davenport in a recent issue of *Collier's*—brings up again one of the mysteries of life: why this industry should be singled out by so many reformers, free-lance writers, et al.

During just the last 10 years, for example, we can recall a series of such attacks, starting with the "appeal" of the 39 southern bishops and ministers in 1927 and culminating with the Davenport silly-symphony in 1937.

As we received honorable mention in the Associated Business Papers editorial awards for our answer to the former attack—under the title "Southern Bishops Uninformed, Even if Sincere"—we feel that the least we can do under the circumstances is to give Mr. Davenport some sort of recognition for his 1937 classic. Consequently, as noted in our statement released to the press last month, we feel that, if there were an award—say a yellow derby—for the most stupid magazine article of the year, Davenport would get it "hands down."

We shall not repeat the details of that statement other than to re-emphasize one of our conclusions. The attempt to prove that a worker gets nothing for a week's work merely because he spent his week's wage is as stupid as would be the equally untenable claim that, merely because most of us live up to our income, we get nothing for the jobs we are doing!

WE mentioned, above, the "mystery" of these attacks. When we think of the conditions under which so many millions of people exist in this country, and then compare them with conditions in southern cotton mills, with which we are so familiar, we wonder just what happened to isolate one branch of industry as a "horrible example" when instead it should be extolled, by and large, as an example of the social progress that can be made under an industrial regime.

We have come to the conclusion that one reason for this injustice is the indiscriminate linking together of all remotely-related trades and occupations into one grouping, known loosely as the southern cotton industry. Sharecroppers, garment workers, mill workers, and others are all one, in the minds of so many people. And it has been to the interest of certain organizations to heap, by inference, all the tragedy of an out-moded agricultural system, and the crimes of a part of the rapidly-growing southern garment industry, upon the cotton mills.

That accounts in part at least, we believe, for the crazy notions some people have on this subject. And writers who presumably ought to know better, exploit these crazy notions at so much per word.

WHAT can be done about it? Better public relations, of course.

The textile industry collectively—and its manufacturers individually—have never been strong on telling their story to the public. That their story is a good one—and that it can be told effectively by the industry—is demonstrated by the fine job done by way of answer to the Davenport inanities. However, there should be an offense, as well as a defense.

In this work, particularly, a united front on the part of the *whole* textile industry is the only sane approach. We recommend this as one more — and a compelling — reason for the closer coordination of textile association activities which we have been advocating for so long.

The Editor Says

What Next?

NOWADAYS the streets are full of prophets who are trying to salvage something of their reputations by protesting that they "knew last spring this depression was coming." You can't blame them much; it's been a tough year on prophets, including the present writer.

However the fact remains that they didn't "know" any such thing—and that in fact most of them don't know what it's all about now. They're not even sure it *is* a depression, but they are calling it that to be on the safe side.

What next?

It seems to be the fashion now to debate whether the upturn will come at the end of the first quarter or at the end of the half. Taking sides on that question seems to us to be as complete a gamble as one could participate in.

Nevertheless, we are confident that the upturn *will* come some time in 1938, and that the recovery movement will then be resumed. Pending that time, the textile industry will need restraint, most of all. It can save itself much of the grief of 1932 by refusing to be stampeded into price and wage chiseling which was responsible for so much of the chaos then. Prevention of this cannot be postponed until some time in the future. Action is needed now. A look at the declining manufacturing margins in staple cotton yarns and fabrics (page 122) will give one indication of the danger facing the industry if it does not utilize some of the lessons learned during the last depression.

A word to the wise, we hope, is sufficient.

Let's Look at the Record

HERE is what has happened in textile mill activity to date—or, rather, through October which is the last month for which statistics are available at this writing:

For the first half of 1937, TEXTILE WORLD'S index of mill activity showed a rate 24% higher than the first half of last year. Then things began to slide off: July 1937 was 4% below July 1936; August was only 1% over the previous August; September was 8% under; and October 1937 activity dropped to 25% below that of October 1936. The result was that activity for the first 10 months of 1937 was only 10% above that for the corresponding period of 1936, instead of 24% up, as it was at the half-year. Since the balance of this year will be considerably less active than the last two months of 1936, this 10% differential will itself probably disappear—and 1937 will go on the record as about even with last year in textile mill activity.

Remember, however, that 1936 was a swell year—24% above the 1923-25 average which statisticians are still using as "normal." We said in our Annual Review and Forecast Number last February that "if the textile industry reached the same rate of activity in 1937 that it did in 1936, it would be putting on a swell performance. If it dropped off say 10%, it would still be a good year." At this writing it looks like the former. So, no matter how glum the industry may feel at the present, it and its workers at least have that record behind them for the year.

And in Washington?

WE are still convinced that the effect of Congress is going to be helpful this time rather than otherwise. This, despite the poor start the special session got off to. We feel the reasons we itemized last month still hold, in the main. Incidentally we note that Scheuer & Co. also visualize the new session as a constructive prospect, rather than otherwise.

But one has to stick to generalities in discussing the present Congressional situation. The fate of any specific piece of legislation is anybody's guess. What looked like a near-certainty a month ago may be shrouded in doubt now. Nowhere are prophets having a tougher time than in Washington.

Taxes . . . Make Yourself Heard!

THERE is one point on which Washington observers seem to agree: that there is real hope of tax revision at the regular session of Congress, although probably not during the special session.

The nature and extent of this revision depend very largely, we believe, upon business itself. If industrialists will make themselves vocal on the need for immediate change in the tax structure, Congress will heed.

Consequently, we call our readers' attention to the message from James H. McGraw, Jr., president of the McGraw-Hill Publishing Co., appearing in the special insert facing page 104 of this issue. A chance for expression is offered there; we urge our readers to utilize it.

Anti-Silk Hysteria

THE National Association of Hosiery Manufacturers is to be congratulated on its thoughtful and logical statement in opposition to the attempted boycott of silk hosiery. We expressed our own objection to such a boycott in last month's issue, and still feel the same—only more so.

This has nothing to do—or should have nothing to do—with one's feelings as to the issues involved in the Japanese-Chinese war. As William H. Gosch previously expressed it, "silk has no nationality."

The association points out that the "innocent victims" of the boycott would be 85,000 American workers engaged in the silk hosiery mills of this country.

The attitude of American textile manufacturers toward this threat will not be influenced by individual identification with a particular branch of the industry. The implications are anti-textile, rather than anti-silk. If any imagine that they could escape the discrimination by producing nothing but rayon hosiery, for example, let them try it—and see how quickly hysteria of this sort includes *all* hosiery. The average consumer will not discriminate between silk and rayon. In her ardor, she will merely shun hosiery in general—just as is happening now on the campuses of some of the women's colleges.

A careful reading of the association's statement is recommended.

In the News

Rayon 3-Shift Opposition Grows

Sentiment favorable to two-shift operation in the rayon and silk weaving industry was crystallized Nov. 23, at a meeting in New York, sponsored by the Textile Converters Association. The gathering, which marked the first public organized discussion of this question, brought together 100 representatives of 80 firms including manufacturers, commission weavers and converters. A resolution proposing that converters boycott weaving firms which do not limit operations to two shifts was read at the meeting, but was not passed. Various speakers, including Walter Ross, president of the converters association, stressed the need for coordinated action on this issue. A few days subsequent to the meeting, it was made known that Mr. Ross had appointed a committee of ten, including five manufacturers and five converters to outline a definite plan of action looking to the desired curtailment.

Kendall Presents Textile Exhibit

An 18-ft. exhibit of "An Integrated Cotton-Textile Enterprise" has been presented to the Harvard Business School by Henry P. Kendall, president and treasurer of the Kendall Co. The exhibit will be on permanent display in Baker Library and will be used to supplement class work in the courses in Industrial Management and as a reference for anyone interested in the cotton-textile industry. The whole story of cotton and cotton textiles is told in the exhibit, which illustrates the basic steps and the operations performed from the cotton field to the ultimate consumer. Exhibits describing the processes of production and the articles produced in the shoe, aluminum, chemical and automobile industries have been presented ot the school previously.

Steele Urges Public Support

Public support for decent manufacturers, sound investments was championed on Nov. 12 before the Associated Industries of Maine in a vigorous address by Fred W. Steele, chairman, legislative committee, National Association of Cotton Manufacturers. The speaker pointed out that American industry today produces the component parts of the highest standard of living the world has ever known, but that the average citizen still maintains an attitude of mild indifference if not hostility to the enterprises which are basic in the country's development. After a mill passes out of the picture, to be sure, there is alarm, and there are mass meetings and despair, but all this takes place after the disaster has taken its toll. Necessity exists for industrial New England to prepare for what might be called industrial storms brought about by adverse legislation; not that opposition is warranted to sound movements to better the workingman's condition, but energetic battling against proposals that threaten to deprive men of work.

Dana Commends Wool Trade

Warm commendation of the manner in which the wool trade has met the business recession featured the inaugural address of President Robert W. Dana of the Boston Wool Trade Association at its Nov. 16 meeting. Mr. Dana also declared that the wool trade needs continued active promotion; that it should closely follow hearings on bills at Washington, with attentive and active interest; and that the best minds of the industry do not expect a protracted depression. The present setback appears due in large measure to fear and lack of confidence, and yet the purchasing power of the country is not seriously impaired as a whole, he stated. There are indications that commodity prices are cheap in relation to securities which have already declined materially.

In addition to the election of Mr. Dana, who is vice-president of Draper & Co., Inc., as president of the association, H. Clyde Moore, president of the Colonial Wool Co., Inc., was elected vice-president, and Secretary C. Willard Bigelow was also made treasurer.

King Cotton Strikes Back!

A new type of cotton tire cord, designed primarily to reduce heat generated at high speeds in truck and bus tires, may spike at least one advance of encroaching synthetic fibers, according to a recent announcement by T. G. Graham, vice-president of B. F. Goodrich Co., Akron, Ohio. The cord was developed after months of research at Martha Mills, Silvertown, Ga., of which Albert T. Matthews is the general manager.

Tests have shown that tires constructed of the new high-flex all-cotton cord last two to three times as long as ordinary tires. The cord is of an entirely different construction and gives unusual strength without bulk, according to manufacturers.

It is believed to be "the most important development for truck and bus tires since the introduction of the balloon tire."

"While certain manufacturers are attempting to solve the heat-speed problem by using synthetic cord construction," asserted Mr. Graham, "we believe that cotton is the finest material for this use, and our new cord is made entirely of American grown cotton."

HOWARD E. COFFIN

HOWARD E. COFFIN, chairman of the board of Southeastern Cottons, Inc., was found shot to death in his apartment at Sea Island Beach, Ga., Nov. 21. A coroner's jury was unable to determine the cause of the discharge of the gun but friends and associates are convinced that everything pointed to an accidental shooting. Mr. Coffin was making preparations for a deer hunt that day and the supposition is that he accidentally shot himself while cleaning his gun.

Mr. Coffin was widely known as an industrialist and financier. He became chairman of Southeastern Cottons early in 1933 and in those relatively few years had made himself a prominent influence in this industry. Prior to his textile affiliation, he was for 20 years vice-president and consulting engineer of the Hudson Motor Car Co. During the war he served as a member of the Council of National Defense and as chairman of the Committee on Industrial Preparedness. He was a close friend of both President Hoover and President Coolidge and was host to them in Georgia. He was a past president of the Society of Automotive Engineers and the National Aeronautic Association.

Tributes to him were paid by leaders in the cotton textile industry and most of the houses in the Worth Street district closed in tribute at the time of his funeral.

Washington Outlook . . .

Wage-hour status uncertain—Odds are against processing tax

WAGES-HOURS

By Blaine Stubblefield,
Washington Office, TEXTILE WORLD

"HERE is my best effort to write a letter that will stand up for a while," writes our Washington correspondent in submitting the accompanying article. "In view of the dense uncertainty here, I feel almost presumptious in this effort."

We can sympathize with him. The Washington picture seems to have degenerated into a picture-puzzle—with many pieces missing . . . We offer this digest to our readers, with due reservations.—*Editor.*

AT last blasted out of the House Rules Committee deadlock, the Black-Connery wage-hour bill still must travel a hard road to enactment. One of three eventualities awaits the measure in the House. It might be passed as it was enacted last session by the Senate and later drastically amended in the House Labor Committee by William Green and others. Such action is extremely doubtful. Or it might be passed further amended, possibly beyond recognition. Or it might be sent back to the Labor Committee for rewriting.

Then the bill will have to run the House-Senate conference committee gauntlet. Greatly changed by amendment since the Senate approved it, it will be almost like a new proposal there. That being so, Senator Berry and other backers of substitute measures will take the opportunity to bring their bills up. Those considered most harmless by the opposition will be played for all the distraction they are worth.

Alternative proposals are too numerous to describe at length. Representative Lamneck wants to amend the Federal Trade Commission Act to make substandard labor conditions and wages an unfair method of competition. Senator Berry wants a flat statutory wage-and-hour law to blanket the country, administered by the Department of Justice. Secretary of Labor Perkins advocates a labor control board, or a single dictator, in her Department. Some highly-placed Government officials would like to see a new "President's employment agreement" program, giving industry partial control of labor standards. Representative Hartley of New Jersey would empower the Federal Government to protect States that set up wage-hour laws from invasion by goods from other States without comparable laws. The latest and most important of all the substitutes is a flat 40c = 40 hr. bill by the American Federation of Labor, partly patterned after Senator Berry's proposal. It reserves the upper strata of organized labor for union bargaining and allows no differentials. It could be introduced as an amendment to the present bill. Small industry and the South would oppose it strenuously.

Out of all these proposals will come some kind of labor standards act. Opponents argue that any kind of Government labor-price-fixing would be disastrous. Proponents contend it would increase purchasing power and help labor and industry. The Administration alone is standing firm for a wage-hour law. Washington hears that New England wants it—without any differential in favor of the South. Organized labor talks half-heartedly for it. The Capital believes the New Deal public majority wants it, "for the common man." A large section of industry, even if not economically affected, dislikes the principle. The South and small industry claim the proposed standards would bankrupt them. Congress would like to know, or even guess, what action would please the most people most.

CROP CONTROL

A crop control law some time before spring planting is now expected by a majority of agricultural observers in Washington. Odds seem more than 50-50 against a processing tax. The President has said he would spend only $500,000,000 out of Treasury in farm benefits. Congress is highly sensitive to the demands of business for a lighter burden. It seems doubtful that the Government will try to lay new taxes for support of the measure, unless emboldened by a quick business upturn. Neutral opinion predicts a compromise.

Administration pressure for the control law is necessarily based on the contention that farmers want it. The Senate Agriculture Committee's roving "intake" groups came home with the conclusion that farmers not only want control, but that they want it compulsory. The House committee has subscribed to the same viewpoint.

But Washington spokesmen for the National Grange, with near a million dirt farm members, say it will continue to oppose any program based on economic scarcity. The Grange says that the present soil conservation act "properly administered," with the production loan system controlled by farmers, would be a good thing for agriculture and the public. Thus far and no farther will it go. Congress will be further challenged on this vital issue: Do the farmers want more control than they have now?

The Administration's program, on the other hand, will be supported by American Farm Bureau Federation, which is said here to be allied with the more prosperous farm interests, marketing concerns, and industry—and which oddly enough, has far better connections at the White House than has the Grange. Opposition to the Bureau and the administration viewpoint will contend that the Senate touring committees' "intake" was dished up to confirm its wishful opinions.

On processing taxes Congress hears (1) that the industry does not want to be singled out to subsidize agriculture, and (2) that the industry would dread a repetition of the distraction and loss that went with the outlawed Adjustment Act. And farmers' spokesmen here stand by the processing industries on the tax issue. On that point the Federation and the Grange agree. Farmers, they say, do not believe the processors would pay the tax out of pocket, but would pass it forward or back. Passed forward to consumers the tax would cut the demand of agricultural products. Passed back, it would reduce their prices or their volume in the long run, control or no control.

Anything can happen. Capitol Hill, old-timers say, has not been so confused on agriculture since McNary-Haugen days. Fruit, vegetable, dairy, and other producers may demand consideration. A move to have the Government purchase surplus for distribution to the poor might start. A conservative court decision might scare the lawmakers farther back from the constitutional margin. A crusade to protect the foreign produce market might be started. But a compromise law that will spend the President's $500,000,000, with perhaps a sliding tax of some kind that would function only if necessary, is most probable.

The New Laboratory at Callaway Mills

A Business Within a Business

A pertinent conversation with Callaway about Callaway

Back in 1926, we published an account, in these columns, of what we termed "one of the outstanding news stories of the southern textile industry in recent years." The story was about the forward-looking program of the Callaway Mills, LaGrange, Ga. In the accompanying article we look at the picture again. —Editor.

IN October, 1922, a hand-loom was set up in one of the rooms of a warehouse in the Valley Mills, the waste plant of the Callaway group. As a result of the ensuing experiments, new enterprises—such as rugs, men's clothing, and canvas products—were born, which, in the fifteen years since that modest beginning, have typified the will to experiment and develop, which is the character of the Callaway business. Ironically enough, the parent enterprise—the waste business—has passed out of the picture. If a textile mill can be compared to a fish, this reminds one of the genus of salmon which spawns once and dies without returning to the sea.

Fuller E. Callaway, Jr., who is third in the family line to guide the destiny of Callaway Mills

Such were the thoughts which ran through our mind as we sat in Fuller E. Callaway, Jr.'s air-conditioned office one afternoon this fall. But such ideas came to us from the facts of the business itself—rather than from Mr. Callaway's comments about it. He was too utterly frank, too realistic, to arouse day-dreams. He was trying to give an honest answer to our question: "Did research and development help your company to withstand the depression?"

He answered the question directly: that were Callaway Mills back again in 1925 the same course would be pursued even more vigorously.

He went on to say that it is the sort of program which creates a whole range of new problems but, at the same time, builds up a business which is even more fundamentally sound. Further, that it is this stability, this broader base, which makes the feeling this is the kind of business to be identified with.

It was explained that as a result,

one can sit back and plan broad policies of management, rather than having one's policies subject to a reliance on the present and past.

It was emphasized that this was not true before development and enthusiasm for improved products and new, though often untried, ideas had their place in the sun.

That, in our opinion, is a clear statement of the advantages of new thought and diversification. And its clearness lies in its simplicity. Mr. Callaway, who has been president of the company since 1935, has a directness of approach which makes him a worthy successor of his father and his brother in that office. Throughout our discussion with him, we noticed his ability to strip a subject to fundamentals—so characteristic of men who think clearly and broadly. He isolated the same requirements of good business management which successful "industrial doctors" have always revealed to us: the need for complete separation of raw material speculation from manufacturing; the need for uncompromising control of inventory; the need for market analysis which tells promptly which lines are profitable and which are not.

To touch on some interesting phases of the Callaway enterprise:

The Valway Plant has been probably the most costly of all the new units, due to the necessity of blazing new trails in the manufacture of chenille and tufted rugs and mats. But, just as the rug division has been an expensive one, it has also pointed the way and given helpful guidance to parallel projects.

The men's clothing division, merchandised under the trade-mark "Truline," has a particularly personal significance for Mr. Callaway, as it was there that he did some of his earliest work within the company. It was as a result of his investigation, and under his supervision, that the number of items was cut way down; unprofitable lines discontinued; and a new merchandising program instituted. This division now includes summer suits as an increasingly important line.

Another enterprise—the Laundry Textile Division—manufactures canvas baskets, trucks, etc.

Now for what this writer considers the most important factor in the development of the company's program. The experimental attitude which led to the installation of the hand-loom back in 1922 is still the key-note of the company. Moreover, the facilities for employing that attitude have been extended and perfected. The research laboratory, and the close working relationship between the research group and those who establish policies in both manufacturing and merchandising, promise that Callaway will continue to explore new avenues in both those fields.

What Does It Mean?

The fact that research for the new at LaGrange has been successful is not, in our opinion, a blanket answer to the question whether vertical integration is generally feasible in the textile industry. Too much depends upon the particular conditions affecting the individual case. Obviously a company without the size and resources of Callaway Mills could do far less in the establishment of research facilities, and in the propagation of new markets. Also, the executive personnel is of extreme importance; a company manned by officers who did not have the will to experiment which has characterized the three Callaways in succession, would be licked before it started.

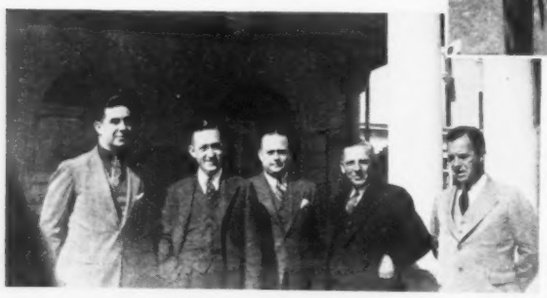
The important consideration, however, is that a company in this age-old industry *did* blaze a new trail, sucessfully. If one company can make an experimental eagerness pay—others whose circumstances are likewise favorable should also be able to do so. And herein lies, we believe, the main hope of the industry in the future.

Carolina Yarn Association

Meets at Pinehurst

THREE HUNDRED members and guests attended the eighth annual meeting of the Carolina Yarn Association at Pinehurst, N. C., Oct. 29 and 30. Ideal weather conditions encouraged those interested in sports to compete at golf, skeet shooting, and other outdoor amusements. Further encouragement was a handsome display of 50 prizes for leading contestants.

Left to right: L. J. Ross, Torrington Co., Torrington, Conn., James McDowell, Hemphill Co., High Point, N. C., J. V. Garrett, Adams-Millis Co., High Point, N. C.



A group of officers and committeemen, reading from left to right: J. R. Morton, chairman entertainment committee, J. P. Rickman, secretary, N. P. Murphy, president, James McDowell, treasurer and H. M. Bailey, Jr., chairman invitations committee

Awaiting their turn, A. L. Lewis of Stonington, Conn., left, and Fred Sails of Charlotte, N. C., both representing Atwood Machine Co.

The highlight of the occasion was the banquet held at the Carolina Hotel Saturday evening, followed by a special floor show in the ballroom. N. P. Murphy, president, acted as toastmaster and presented several guests of distinction.

Those serving the association as officers are N. P. Murphy, president, S. L. Diggle, vice-president, J. P. Rickman, secretary, and James McDowell, treasurer.

P. W. Eshelman, Wilkes Hosiery Mills Co., North Wilkesboro, N. C., left, and T. R. Durham of J. P. Maguire & Co., Charlotte, president and secretary, Southern Hosiery Assn.

Measured Day Work—

A wage-incentive plan which covers hitherto neglected factors

WAGE INCENTIVE plans have been the subject of much constructive thought in industry during the last two decades. The most readily measured unit—production—has been the basis of most of them. The unit, while of major importance, is by no means a complete measure of an employee's value to his employer. In an effort to translate that fuller value into terms of wages, there has developed over the last few years a plan which has been called by the technicians of management — "Measured Day Work."

Rates of pay under measured day work are made up of two parts: (1) base rates and (2) extra compensation rates. Each of these rates may change —the first with prevailing wage levels, company policies, or technological changes; the second, with periodic evaluation of the individual wage earner, the frequency being certainly not more often than one month and preferably every three months. In any one period the worker is being paid extra compensation rates based on his performance in the immediately previous period.

The base rate is set by a process of job evaluation which may be done in a number of ways, but which is satisfactorily done in the majority of instances (according to R. H. Rositzke of R. H. Rositzke & Associates, New York, who has had wide experience in setting up wage systems) by considering the six following factors and giving each a weighting:

1. Mentality necessary
2. Skill required
3. Responsibility involved
4. Mental application required
5. Physical application required
6. Working conditions

In working out actual cases there is often a seventh factor considered which has relation to the minimum rate paid in the plant for the most unskilled work.

Application of these factors, arbitrary as the weighting of each may be, often uncovers discrepancies and provides management with factual material useful in present day labor relations.

The extra compensation rate is determined by combining weighted values for the four following factors:

1. Quantity of production
2. Quality of production
3. Versatility of employee
4. Dependability of employee

Decision on the weighting of these factors is of course governed by individual conditions. Thus, if quality is a prime factor in sales result and is largely controllable by the employee, then factor No. 2 above would rank high in the weighting. The four factors are usually readable from the employee's record.

"Quantity" and "quality" of production may be found in the usual plant records; "dependability" may be not only his attendance record but his attitude toward his job, his conduct and his cooperation; "versatility" records should be incorporated in his personal history and should cover his ability to learn, his capacity for growth and his diversified capabilities. For rating on the "quantity" factor, the usual methods of determining output standards are followed which may include such devices as time and motion study, standard costs, standard times, etc.

On the average, the base rate represents from 75 to 85% of the total measured day rate, but some managements believe in keeping base rates low for the purpose of having employees earn as much as they can on their own merit, while other managements believe in keeping base rates high and insisting that the performance of employees be consistently high to justify them.

It is said that the cost of maintaining measured day work is approximately the same as that for the average wage incentive plan.

Among the advantages claimed for measured day work are the following:

1. Flexibility—the combination of fixed and fluctuating rates gives adaptability to changing conditions with least difficulty. There is superiority to piecework rates in this respect since the average employee seems to consider the piecework rate as his personal property. The employee may be shifted to other work and his pay will not slump as under piece work since he has opportunity between periods of re-rating to recover standing which may have been lost by the transition.

2. Employee Confidence—Measured day work wins the confidence of employees on long-cycle jobs which are difficult to handle under other incentive systems.

3. Improved Foremanship—Responsibility for "fall-downs" under measured day work rests with the operating executives and higher grade of supervision is required. Foremen are credited with improvements and consequently have incentive for increased alertness and responsibility.

4. Reduced Controversy—Measured day work is readily understood by the employee. Less time is spent in arguing about rates and more time in maintaining performance.

5. Spreads Payroll Work—Neither more nor less work for payroll department, but opportunity to stagger the work with rating revisions compiled in off-peak periods.

6. Meeting Depressions—When wage-earner incomes must be reduced, under measured day work the incentives remain constant since reductions are made in base rates.

Among objections raised to the measured day work plan by employers more or less familiar with it, the principal objection is lack of supervisory ability in the ranks of the foremen. In numerous cases where the system has been tried, however, it is said that the foremen generally rose successfully to their greater responsibilities. It is also offered among the objections, that the plan is not well adapted to complicated operations; that it does not get the best performance from the best operators; that it is not quick enough in improving the tempo of workers. Those familiar with the plan admit that it requires the right person on the right job and assert that its use facilitates doing every job in the best possible way.

"Measured Day Work" differs from the usual wage-incentive systems in that—

1. It takes into consideration not only the employee's productivity, but other factors, such as versatility and dependability, which make up his value to his employer.

2. Extra compensation rates are based on the workers' performance in the immediately previous period instead of the current one.

3. In periods of declining wages, the incentives remain constant, while reductions are made in base rates.

Proponents of measured day work state that under the new system employees show less antagonism to the introduction of improved methods, since their pay continues to reflect the worth of their job plus their extra effort; hence employers are better able to avail themselves of more efficient methods resulting in reduced costs.

North Carolina Manufacturers

talk business and play golf at Pinehurst

S. Marshall Beattie, president of Piedmont Mfg. Co. and Woodside Cotton Mills Co., Greenville, S. C., shoots a round with W. C. Bennett, Central Hanover Bank & Trust Co., New York, and W. B. Cole, president of Hannah Pickett Mills, Rockingham.

A foursome composed of K. P. Lewis, president of Erwin Cotton Mills Co., Durham; McGruder Dent, Joshua L. Bailey & Co., New York; W. Rosser Smith, Bank of Manhattan, New York, and W. H. Ruffin, secretary and assistant treasurer, Erwin Cotton Mills Co.

W. H. Suttenfield, secretary and treasurer of Superior Yarn Mills, Statesville, A. G. Myers, president of Textiles, Inc., Gastonia, N. C., C. P. Gray, of Gray, Gore & Daniels, Gastonia, and B. W. Wilson, of Cook & Co., Gastonia.

ANY FORM of processing tax on cotton and any form of Federal legislation which would put regulation of the textile industry in the hands of an appointive board or committee were opposed in resolutions adopted at the 31st annual convention of the Cotton Manufacturers Association of North Carolina, held Nov. 4 and 5 at the Carolina Hotel, Pinehurst, N. C. This expression was confirmed by Dr. Claudius T. Murchison, president of the Cotton-Textile Institute, in a brief surprise address at the banquet.

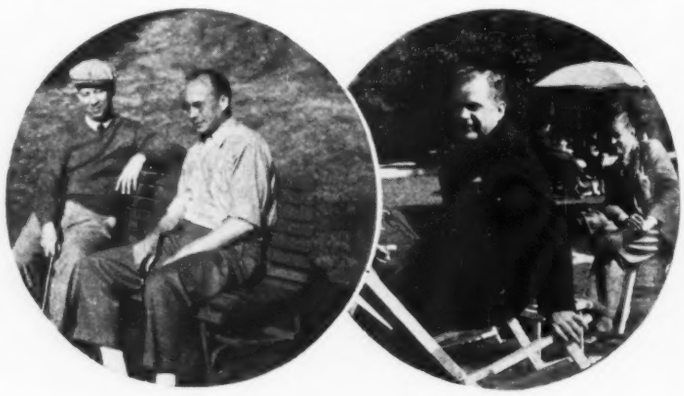
Speaking on legislative and business uncertainty, Dr. Murchison made in substance the following statements: It is rather doubtful that passage of rigorous wage-and-hour legislation will take place very soon if consideration is given to all the forces of opposition which have become consolidated within the last few months. There is genuine danger that the processing tax will be restored. There is real likelihood that substantial modifications may be obtained with reference to the undistributed-profits tax. Ending his address with a note of optimism, Dr. Murchison declared that "the consensus of expert opinion does not anticipate a serious or long-continued depression for business as a whole."

At the business session, Arthur K. Winget, president of Efird Mfg. Co., Albemarle, was elected president. J. Harvey White, Graham, moved up to the position of 1st vice-president, and Albert G. Myers, Gastonia, was elected second vice-president. Hunter Marshall, Jr., Charlotte, and Carl R. Cunningham, Atlanta, Ga., were reelected secretary-treasurer and traffic manager, respectively. Directors named for three years included F. B. Bunch, W. H. Ruffin, Arthur London, D. P. Johnson, Ellison A. Smyth, III, and Stuart W. Cramer, Jr.

The new president of the Cotton Manufacturers Association of North Carolina is Arthur K. Winget (left), president of Efird Mfg. Co., Albemarle. Retiring president is Herman Cone, treasurer of Proximity Mfg. Co., Greensboro.

The business meeting was entirely executive and consisted largely of a discussion among the members of various problems confronting the industry. Reports were presented as follows: "State Legislature and the Textile Manufacturer," R. L. Harris, Roxboro; "Functions and Future Development of the North Carolina Industrial Council," Agnew H. Bahnson, Winston-Salem; "Traffic Department and Development of the Southern Textile Industry," S. Marshall Beattie, Greenville, S. C.; "Traffic Department and North Carolina Mills," F. J. Haywood, Concord, and Carl R. Cunningham, Atlanta, Ga.; "Taxation," Bernard M. Cone, Greensboro; "Cotton, the Raw Material," Charles A. Cannon, Kannapolis; "Keeping the Public Informed," Thomas H. Webb, Concord. E. C. Dwelle reported for the finance committee, F. B. Bunch reported on membership, Marion Heiss on safety contest, and Alex R. Davis on Stonewall Jackson Training School.

At the banquet, Luther H. Hodges, of Spray, N. C., presented medals to past presidents or their representatives. James D. Sandridge awarded golf prizes.



Dr. Claudius T. Murchison (at right) president of Cotton-Textile Institute, relaxes a moment on the first tee. He was a surprise speaker at the banquet.

A. C. Lineberger in the foreground of further picture catches a little sunshine between business sessions.

New Research Plan

Proposed by Killheffer at U.S. Institute's Annual Meeting

HOLDING its eighth annual meeting in New York, Nov. 12—a few days after the death of its President, Francis P. Garvan—the U. S. Institute for Textile Research paid tribute to Mr. Garvan; postponed for 90 days the election of officers and directors; heard Dr. E. H. Killheffer, of E. I. du Pont de Nemours & Co., acting president of the organization, urge the establishment of a graduate institute of textile research; and received reports of various researches, particularly that on the study of vertical integration in the textile industry being conducted by the Wharton School of the University of Pennsylvania.

The latter study, which is being financed by the Textile Foundation, was originally suggested by the Economic Research Committee of the U. S. Institute for Textile Research—and that committee is acting in an advisory capacity to the Wharton School during the survey.

Dr. Killheffer's recommendation for a graduate institute of textile research was based on the experience in the paper industry which he described as a successful example of this approach. Specifically, he proposed this plan: Establish a textile research institute in connection with a small centrally located university. Equip it with a complete library and general research facilities. Staff it with the very best men obtainable, though initially limited in number. Concentrate textile researches at this one point through the admission of fellows supported by individual, or groups of, textile units. Provide for post-graduate work by the graduates of existing textile schools and colleges, enabling such students to work to their doctorate. Special researches to be conducted for the sole benefit of those who pay for them. Financial support to be guaranteed through a scheme of proportional assessments based on some factor—sales, for instance, or capacity if that is a better measure.

At such an institution, Dr. Killheffer pointed out, the textile industry could carry on fundamental research cooperatively. Any unit or group could also carry on applied research. The institute could and would supply trained men and women, trained not only in the sense that they would know all of the then known facts but trained in research and its technique.

The experience of the Institute of Paper Chemistry in this direction is at the disposal of the textile industry. The speaker suggested that if the Textile Foundation, after careful examination of the plan, decided to launch it—using a part of its funds to do so—he believed that individual mill subscribers would be much more readily obtained.

Dr. E. H. Killheffer who proposed new research plan to U. S. Institute for Textile Research

Vertical Integration Study

The progress report on the vertical integration study was presented at the dinner jointly by Dr. Joseph H. Willits, dean of the Wharton School, and C. Canby Balderston, H. S. Davis and George W. Taylor, members of the Industrial Research Department of that school. Dean Willits reported that the announcement has been made and the findings are now in the preliminary manuscript form and that the printed report will be available early in 1938. He paid tribute to the cooperation of the Foundation and the Institute, as well as to the heads of the various textile associations who had advised during the course of the study and to some 500 individuals who were interviewed by the researchers. No definite conclusions were presented at this time, but the purpose, scope, and significance of the study were discussed.

Technical Research

Wanda K. Farr, of Boyce Thompson Institute for Plant Research, the final speaker at the dinner meeting, outlined recent progress in the analysis of cellulosic materials. According to Dr. Farr, much of the earlier work at Boyce Thompson Institute which indicated that the cotton fiber is built of fibrils consisting of small cellulose particles and a gelatinous colloidal matrix, has been corroborated by X-ray diffraction analyses, micro-chemical reactions, ultra-microscopic examinations, and other techniques.

At the afternoon open research conference, presided over by W. E. Emley, chairman, Research Council of the U. S. Institute, Dr. W. E. Yelland, director of U. S. Institute's research on warp sizing described briefly results obtained thus far in a laboratory investigation of the chemical and physical properties of various sizes and mill studies of the rayon warp sizing process. Dr. J. G. Wiegerink, director of the Institute's drying research discussed his program, which, when completed, is expected to show the optimum conditions for drying cotton, wool, rayon, and silk, and to indicate those temperatures, speeds, etc., beyond which one cannot go without danger of injury to the fibers.

Prof. Louis A. Olney, chairman of Research Committee of the A.A.T.C.C., outlined the research program of the association and then introduced the following A.A.T.C.C. research associates, who reported on results of their work: Dr. Milton Harris, Dr. S. N. Glarum, and Bertil A. Ryberg. Dr. Harris, in discussing the chemistry of wool, pointed out that protein chains in the wool molecule appear to be linked together by sulphur in the form of disulphide groups which account largely for the stability of the molecule; these groups are susceptible to attack by oxidizing and reducing agents, alkalis, and light—a fact to be noted in processing wool on a commercial scale.

Dr. Glarum reviewed the work on vat printing pastes which has led to the development of a method for determining whether or not printing pastes have satisfactory flowing properties and has given information on how to prepare pastes to give the best results; a study is now being made of the reactions of printing pastes under various ageing conditions. Mr. Ryberg, speaking on A.A.T.C.C. researches which have found practical industrial applications, cited the following examples: development of dye fastness tests and a fulling test, investigation of the carbonizing process, and development of a method for quantitative determination the various fibers in mixed textiles; at present methods are being worked out for the determination of oil, soap, and other foreign matters in wool.

During the meeting, the annual report of the board of directors and executive committee of the Institute was presented by Charles H. Clark, secretary. The following committee on revision of by-laws was appointed: Alban Eavenson, Dr. R. E. Rose, Dr. H. DeW. Smith and W. E. Emley.

The Selvage Cycle

Key positions of needles and sinkers explained for benefit of fixers on full-fashioned machines

By Walter A. Simond

OF THE VARIOUS precautions which must be taken to insure good selvages in full-fashioned hosiery, one of the most important from the fixer's viewpoint is to obtain an accurate working cycle. It is the purpose of this article to disclose the key positions of the needles and sinkers during one revolution of the knitting cam which result in the best selvages.

The sketches in Fig. 1 showing the formation of the selvage loop, together with the description of the sketches, is reprinted through the courtesy of Textile Machine Works, from an article entitled "Bad Selvages," which appeared in the January, 1934, issue of the *Reading Record*. That article, incidentally, describes a number of causes of bad selvages other than the one which is considered in the present discussion.

Selvage Formation

"The sketches used here to show the formation of the selvage loop are greatly exaggerated, necessarily so on account of the extremely short distance between sinkers and dividers. The sinkers and dividers are drawn to scale, but the distance between them is approximately 100 times the actual distance. Fig. 1*a* shows the beginning of the selvage formation. Couliering and dividing have been finished with the carrier stopped over divider 1. Thus it will be noted that the last loop is formed by sinker 2 and divider 3 moving forward and kinking the yarn around needle 4. The sharp angle that the yarn takes from the throat of sinker 2 to the carrier tube prevents needle 5 from catching the yarn under its beard as it goes down. The new loops are then pulled through the old ones, the needles returned to their highest position, and another course of yarn is laid. As the yarn is laid across the nibs of the sinkers and dividers, the sinkers are slurred forward, sinking the yarn between alternate needles; and at the end of coulier-ing the knitting head is in the position shown in Fig. 1*b*. Here the yarn is wrapped around needle 4 and carried up over the nib of selvage divider 3. Now when the dividers are brought forward by the catchbar, the yarn, instead of sliding up into the throat *A* of divider 3, is carried under the auxiliary nib, *B*, as shown in Fig. 1*c*. Thus less yarn is drawn by divider 3 than would have ordinarily been drawn. Therefore, the last loop is pulled slightly tighter than the inner loops and consequently a tight selvage is formed. There is a tendency for needle 4 to rob a slight amount of yarn from needle 6 in forming the last loop and, as a result, the last two loops are likely to be tighter than the others."

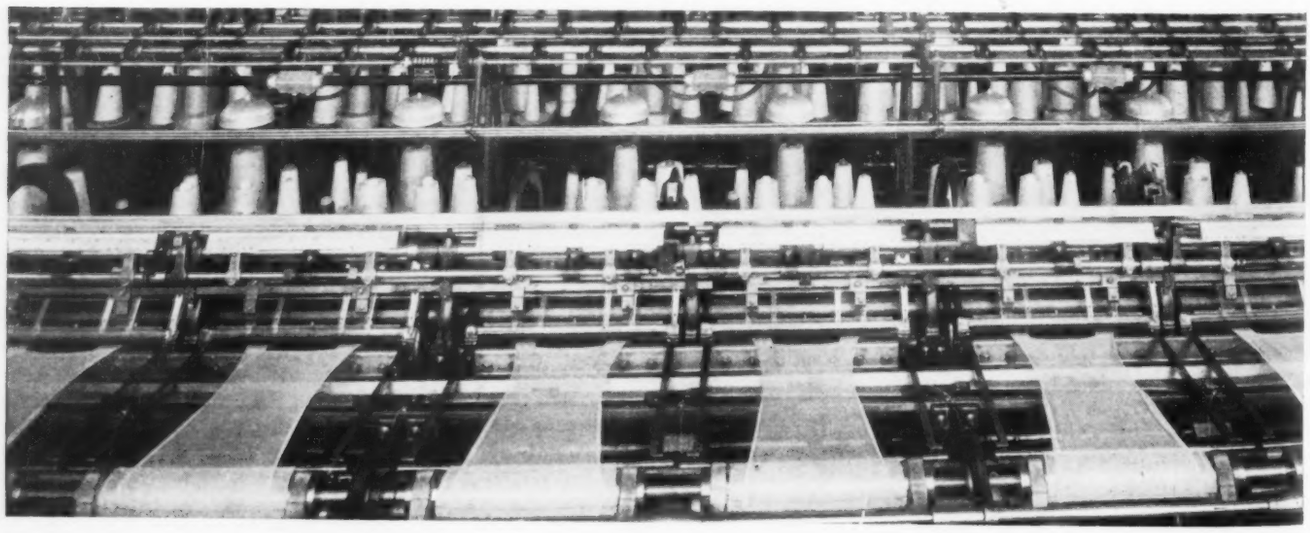
"Since the carrier must be set slightly lower than the top edge of the sinkers, and since it is always stopped over a divider in order that the preceding divider might be used in forming the selvage, the dividers are made with their front part slightly lower than the sinkers. This lower setting of the carriers prevents the yarn from being thrown over the throat of the sinker 2 (Fig. 1*a*) at any time, and in this way preventing the occasional loss of a loop and consequently preventing a rough selvage."

To avoid the possibility of the yarn being caught by the upper point of divider 1, which lies under the carrier tube in Fig. 1*a*, the carrier tube must not have too large a bore or be set too low. This would cause an extra loop to be drawn by needle 5. Such extra loops give the selvage a rough appearance and often cause the selvage stitch to be cast off. This trouble is more likely to be found on short-needle machines, because the yarn does not take as sharp an angle as it leads up from the throat of sinker 2 to the carrier tube.

Key Positions

The most important setting position in the selvage cycle is when the needles first come in contact with the press edge of the sinker beds. Usually a head can be found where an extra needle can be put in for testing this position. If not, an outside sinker can be removed so as to give an unobstructed view of the needle beard and hook. It is best to check the block-gage distance between the cam circles and press-cam rollers before making this test, since the amount of press varies the needles at this point in the selvage cycle. The

Selvage formation is a vital part of the full-fashioned knitting operation.



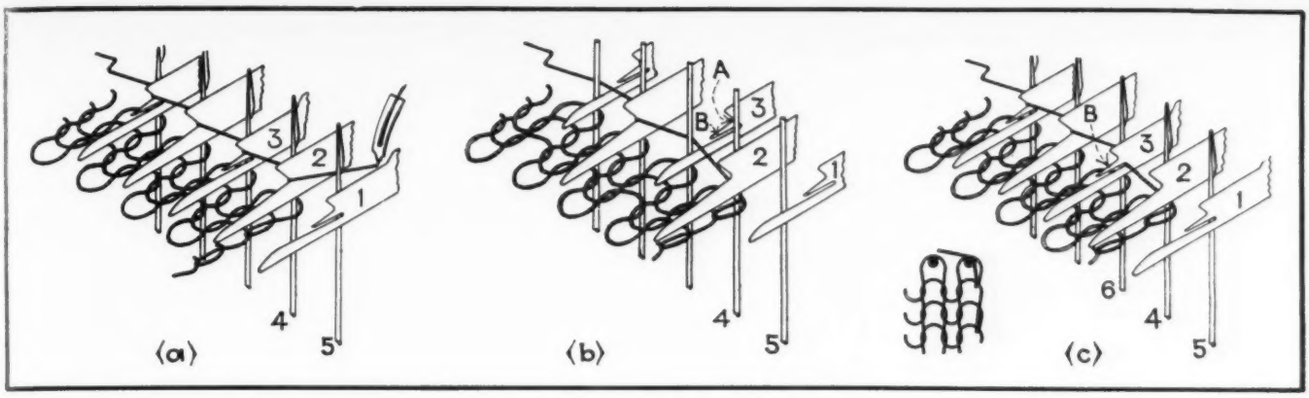


Fig. 1. Formation of selvage loop.

correct position for almost every kind of fabric is to have the point of the needle beard at the same height as the bottom edge of the sinkers when the needle beard comes in contact with the press edge, as shown in Fig. 2. A good description of this setting can be found in "Knitting Full-Fashioned Hosiery," by Miller, in the chapter on "Concurrent Movements of Sinkers—Seventh Position."

The other key position in the selvage cycle is where the hook of the selvage needle passes the thread when the needles rise after clearing a course. The right relation is to have the back of the needle hook just meet the back of the sinker throat when the center of the hook and the throat are at the same level, as shown in Fig. 3.

In the best of the modern machines there are movable bits in the cams, which can be used to obtain these required positions exactly. In older machines there are no bits in the cams for the thread-passing position, and Textile Machine Works recommends advancing or retarding the presser cams slightly to obtain the correct relation at this point in the cycle. The needle-rocking (press) cams should first be located for the thread-passing position and then the needle-pressing position obtained by the use of the selvage bits in both the needle and needle-rocking cams if necessary. The best procedure is to adjust the bits as little as possible in order to have a smooth cam contour and avoid any bumping of the cam rollers.

When the needles draw downward for the press, the friction of the yarn and the widening of the needle eye tend to draw the selvage stitch down toward the knocking-over bed. Since the yarn leading up from this lowered stitch lies obliquely across the eye of the needle, it becomes necessary to press in a relatively low position in order that the tip of the beard of the selvage needle can enter the needle eye below the oblique yarn of the newly kinked stitch and above the old stitch on the stem of the needle, as shown at needle 4 of Fig. 1*c*. If the needles press too high, both loops may be cast off; if too low, both may pass under the needle beard.

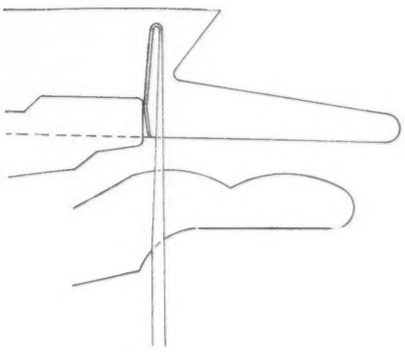


Fig. 2. Press position.

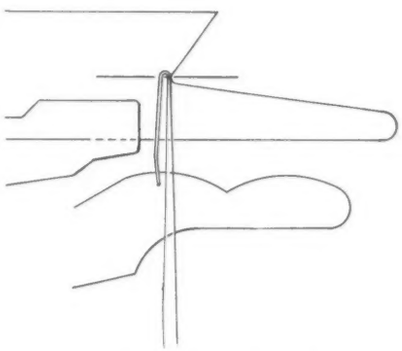


Fig. 3. Thread passing.

In regard to the thread-passing position, if the needle hooks are too far toward the press edge of the sinker heads, an extra needle may pass inside the yarn to cause a loop on the selvage; if the hooks are too far in the opposite direction, the selvage needle will pass outside of the yarn and the selvage stitch will cast off when the needles descend. Much selvage trouble is caused by the needles rising too far out, since the wear of the cams carries the needles and sinker throats apart at the thread passing position.

Periodic Examination

In a correctly designed machine, properly erected, no change of the cam bits is needed, as the sinkers and needles will be in correct relation in their motions. However, after the cams begin to wear, it will be necessary to move the bits to compensate for lost motion. For this reason, it will be necessary to examine these key positions in order that they can be maintained. Checking one head and then the needle alignment can be done quite rapidly and makes for better selvages.

Knocking Over

Another condition that makes for poor selvages, which should have more consideration than it usually receives, is the knocking over. Examination of the fabric on the knitting machine will show—when the machine is stopped with the stitches drawn down upon the notch in the knocking-over bits—that the selvage stitches are in contact with one bit only where all the other stitches are to be turned by the rubbing action of two bits each. The rolling of the fabric at the edges slightly compensates for the loss due to the one bit thrust; yet it will be quite obvious that the selvage stitch will be less likely to turn as well, over the top of the needle hook, as the other stitches.

When a selvage is off, a simple test to show the advantage of a little more knocking-over action can be made by placing a loop of thread around the selvage needle just before the carrier reverses. By pulling lightly upon the ends of the loop while the machine is running, the selvage will form and knit for an inch or so or until the ends of the looped thread are dropped.

In order to obtain the best knocking-over action, it is necessary to have the needles and knocking-over beds in absolutely right height relations with the sinker beds. If the alignment is not accurate, the knocking-over beds will have to be lowered to avoid injury to the fabric, selvages being sacrificed.

When the needles descend from the position shown in Fig. 1*a*, needle 4 will carry its newly kinked loop to the proper depth; but the new loop often drags the old loop down so far it does not turn over the top of the needle hook. Then, when the needle rises, the yarn of the new loop will be in front of the needle, instead of leading up from the outside of the needle and the selvage stitch will cast off, since the yarn did not wrap the selvage needle when the carrier reversed.

Methods, chemicals and equipment employed in sulphuryl chloride process for producing

Unshrinkable Wool

By A. J. Hall, F.I.C., F.T.I.

In March of this year a process for making wool unshrinkable by treating it with sulphuryl chloride was described in a paper presented by its discoverer, A. J. Hall, at a meeting of the Society of Dyers & Colourists, in Manchester, England. Actually this treatment, which is now known as the Dri-Sol process, had been discovered some two years previously (English Patent 464,503). During the last few months several companies in England and on the continent have obtained licenses to use the process.

In view of the interest in this country in making wool unshrinkable, we asked Mr. Hall to describe the methods and equipment employed in the Dri-Sol process and to discuss the results which have been obtained to date. The following article on the present status of the sulphuryl chloride process is believed to be the first authoritative statement, except reprints and abstracts of the paper mentioned above, which has appeared on the subject in any textile publication.

AS IS WELL known, wool materials can be made unshrinkable by steeping them for a short time in an acidified solution of sodium hypochlorite. Unfortunately this complete unshrinkability can be obtained only with simultaneous impoverishment of the wool. One of the main advantages of the treatment with sulphuryl chloride is that it eliminates this injury to the fiber. At the same time, wool materials which have been treated by the Dry-Sol process, as the new method is known, are now being sold in England with a positive guarantee that they will not shrink, even after repeated hard washings.

The equipment used in carrying out the sulphuryl chloride process on a commercial scale is shown in Fig. 1. *T1*, *T2*, *T3*, and *T4* are the tanks in which the treatment is carried out. The tanks (Fig. 2) are made of acid-resistant stoneware and are provided with a perforated false bottom, *P*, and tap, *A*. Usually each tank is capable of holding 100 lb. of air-dry wool fabric, garments, socks, etc. For treating this amount of material the tank should have a capacity of about 50 to 70 gal., since the ratio of liquor to wool is generally between 5 to 1 and 7 to 1. In Fig. 1 *H* is a hydro-extractor which contains a Vulcanite cage and also has the inside of its outer casing lined with Vulcanite. *S1*, *S2*, and *S3* are stoneware liquor-storage tanks, so arranged that *S1* is just below floor level, *S2* is elevated, and *S3* is at such a height that it can feed the treating tanks *T* by gravity flow. By means of a pump, the liquor in *S1* can be elevated to *S2* so that it can then flow by gravity through cooling device *C* before it reaches *S3*. This arrangement is not adopted by all licensees who use the process, since there are other systems which have advantages in some cases.

The equipment described above is constructed without metal in any part in which the sulphuryl chloride solution is likely to come in contact, for the reason that this solution corrodes metals. Stoneware and Vulcanite are resistant. Fortunately, no movement of the wool material is required during treatment, and this allows simple types of equipment to be used.

Procedure Followed

The procedure is as follows: First, *T1* is filled with the necessary amount of a 2 to 2¼% solution of sulphuryl chloride (by volume) in white spirit. Since this is run direct from *S3*, it is just about 15° C. The wool material is then put in the tank and pushed underneath the surface of the liquor by means of a pole. This operation occupies about 3 to 5 min. and is assisted by the fact that penetration of the wool by the liquor takes place immediately. The whole mass is then left for 1 hr. no additional stirring being necessary.

During this period the temperature of the mass of wool and liquor rises gradually to about 26° to 28° C. Toward the end of the hour, the tap *A* is opened and the liquor run off through a rubber pipe into *S1*. The treating vessel *T1* is then pushed to the side of the hydro-extractor (It is mounted on a low trolley or platform with wheels for this purpose.) and the wool placed in it. During hydro-extraction the liquor separated is run into *S1*. The liquor collected in *S1* is run through the sys-

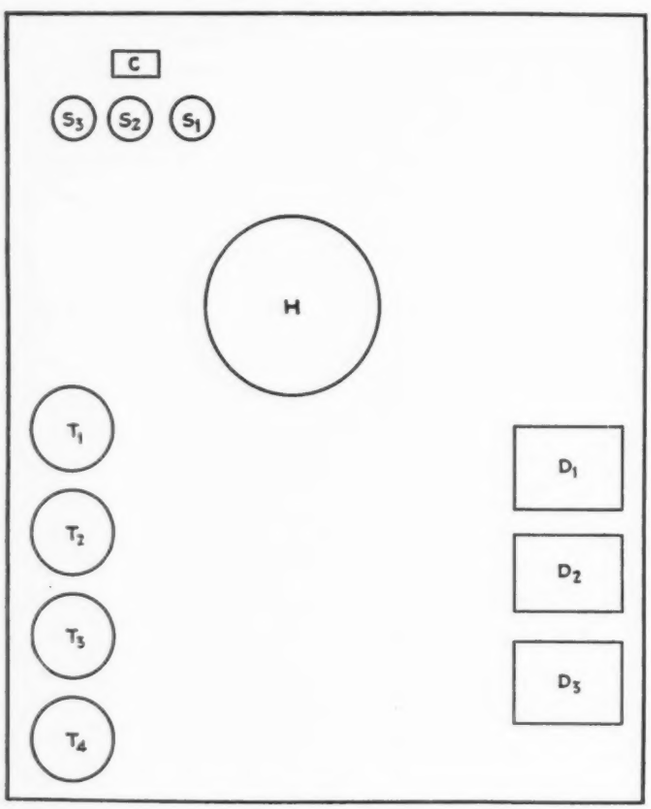


Fig. 1. Layout of equipment employed in producing unshrinkable wool by the sulphuryl chloride process.

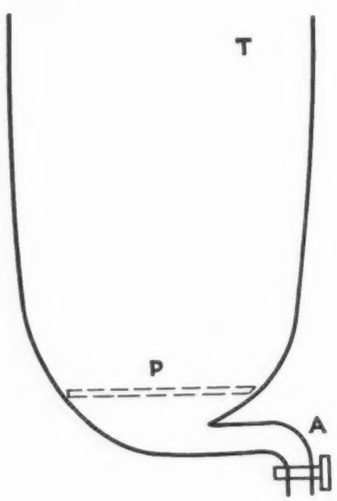


Fig. 2. Stoneware tank in which treatment with sulphuryl chloride is carried out.

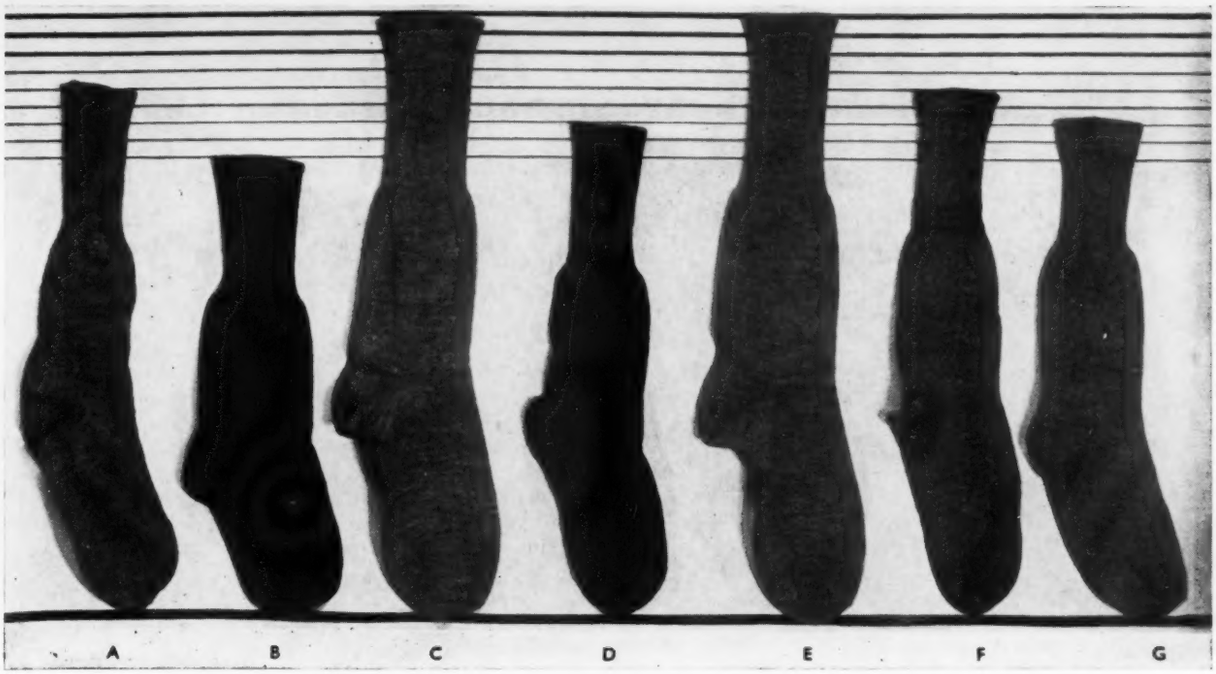


Fig. 3. Effect of washing; all socks were of same size before washing as shown at E; after washing sock processed with sulphuryl chloride retained its original size as shown at C; all others shrunk badly.

tem *S2* and *C* to *S3*, where it is maintained at 15° C. for re-use.

At this stage the wool material contains a small amount of liquor, but feels quite dry. It is removed from the extractor and washed free from chemicals in a dolly (*D1, D2, D3*), or is washed by spraying with water in the hydro-extractor itself. In the latter case it is necessary to by-pass the wash-water outflow to the drain instead of to *S1*. Finally the wool is treated with warm dilute soda ash solution to neutralize all acidity. It is then ready for scouring, bleaching, dyeing, etc.

Operating costs as determined by large-scale production are obviously of importance. First, it is found that about 50% of the sulphuryl chloride applied is used up in the process and that the loss of white spirit is very small. That is, in treating 100 lb. of dry wool the maximum loss of white spirit is 2 gal. and the loss of sulphuryl chloride is 10 lb. In Great Britain the maximum chemical cost in large-scale production is ½ d. per lb. of air-dry wool [approximate American equivalent,1c.].

Turning now to the action of the treatment on the wool itself, it is found that each and every fiber (even when the wool material is tightly packed or twisted) receives equal treatment. This uniformity of treatment is due to the high penetrating power of the white spirit, which carries the sulphuryl chloride into the wool material.

The action of the sulphuryl chloride on the wool is relatively slow—1 hr. is allowed for the treatment, but it does not matter much whether this period is reduced or extended by 15 min. The action is not violent, since the temperature does not rise above 30° C. as an abnormal maximum, and the rise is quite gradual.

When the individual fibers of the treated wool are examined under the microscope, it is difficult to discover any change in their appearance. Usually it is possible to distinguish them only by a dyeing test, and then only 10 to 20% of the treated fibers appear to dye slightly deeper than untreated fibers.

Recent determinations of tensile strength indicate that the fiber strength of the processed wool is not less than 25% higher than untreated wool. Since tensile strength is not strictly a criterion of durability and wearing value, many varied tests have been made on the actual wearing qualities of Dri-Sol processed garments. The tests indicate that the high degree of unshrinkability has not been obtained at the expense of wearing quality.

Softness is an important property of wool. Ordinarily it is not necessary in the finishing processes to apply any of the usual softening agents to wool which has been treated with sulphuryl chloride, although these can be employed to obtain super-softness.

Processing Yarn

Recently a considerable amount of wool yarn has been processed so as to be unshrinkable before knitting or weaving. This yarn can then be dyed or bleached for white. At first some difficulty was experienced in securing a satisfactory white, but this was eventually traced to insufficient washing out of the white spirit. When the yarn is thoroughly cleaned (an oil emulsifying agent, such as Gardinol, is now added to the wash water), it is possible to get a white which is fully as good as that obtainable on untreated wool.

No difficulty is experienced in producing level dyeings with acid dyes; in fact, the pre-treatment is advantageous, since it prevents any felting during dyeing. At the present time the dye manufacturers are testing their dye ranges in order to classify dyes according to the manner in which they are affected by the process. Results obtained thus far indicate that no difficulty will be experienced in applying the sulphuryl chloride process to wool goods which have previously been dyed.

During the last two months considerable success has been obtained in the application of the new process to wool tops in the ball form. At first the balls were unwound into skein form for the treatment; but later it was discovered that the top in the ball form could be simply thrown into the sulphuryl chloride solution. This solution quickly penetrates through every part of the ball and makes the whole of it uniformly unshrinkable. The ball can then be hydro-extracted, washed in the hydro-extractor with water, and then dyed in a top-dyeing machine. Finally the dyed wool is back-washed and gilled and rewound into ball form. Spinners who have handled Dri-Sol processed tops have reported that the pre-treatment facilitates spinning, so that finer and stronger yarns can be produced. Knitters have already begun to use unshrinkable yarn produced by this process.

In order to compare the effect of the new process with the older method of wet chlorination, a number of men's wool socks were purchased at retail. Several of these socks bore well-known branded names and were marked "Unshrinkable". These socks, together with one which had been treated with sulphuryl chloride, were then washed by hand in warm, soapy water; dried; and photographed. This photograph is shown in Fig. 3. All of the socks were of the same size before washing, as represented by the unwashed sock at *E*. It will be noted that the Dri-Sol processed sock at *C* retained its original size, whereas all the others shrunk badly and felted.

Wide variations in throwing and quilling methods disclosed in first report of committee on

Rayon Crepe Research

THAT NUMEROUS variations occur in winding, twisting, redrawing, and copping or quilling of rayon crepe yarns was shown in the first report of the results of an investigation carried out by W. F. Macia, under the supervision of the Rayon Crepe Research Committee jointly appointed by the American Association of Textile Chemists & Colorists and the Throwsters Institute. The study showed further that in most instances the variations were unavoidable, even with the most careful supervision, because it is almost impossible for throwsters and weavers to control their mechanical processes any closer without some radical improvement in their machinery. As more information becomes available regarding the actual influences of variations in the mechanical operations upon the production and quality of the finished fabric, this knowledge will be utilized by the machine makers to the advantage of the entire industry. Since it will probably be some time before the necessary changes in equipment and machinery can be made to bring about more positive control, it is suggested that every possible effort be devoted to reducing the existing variations by any means best suited to the individual manufacturer.

In a supplementary report on a comparison of the winding qualities of rayon skeins in a rayon producing plant and in a throwing plant, the committee reached the following conclusions: (1) In the rayon producing plant the yarn from the dryer ran slightly better than the yarn from the packed case. (2) In the throwing plant the yarn from the dryer ran better in the untreated state; but, after being soaked, the yarn from the dryer and that from the packed case ran exactly the same. (3) The best running yarn was that which was soaked and wound in the throwing plant. (4) The speed of winding and the tension or strain exerted on the yarn during winding was practically the same in both plants. (5) Since throwing plants soak most of their yarn, they enjoy better winding than the rayon producers. The data in this investigation indicate that the present method of handling rayon skeins between the dryers in the rayon producing plants and the winding operation in the throwing plants does not affect the winding quality of the skeins.

The variations in each of the various mechanical steps in processing rayon crepe yarn were disclosed by a survey made in seven throwing plants and four weaving plants. The study was confined to 200-denier viscose-type filling yarn. The following summary of the results is abstracted from the report as published by the committee in the Proceedings of the American Association of Textile Chemists & Colorists, *American Dyestuff Reporter*, Nov. 1, 1937.

Results of Survey

Winding—Machines: Atwood, Sipp-Eastwood; winding tension: 11 to 70 grams, with 1,235 out of a total of 1,400 ends ranging from 21 to 56 grams; weight on swift axles: 11 to 24 oz.; length of yarn under strain: 18 to 24 in.; density of winding spools: 21 to 80; average temperature: 73 to 82° F.; average relative humidity: 40 to 59%; yarn running speed: 76 to 257 yd. per min.

Twisting—Machines: Atwood, U. S. Textile Machine; tension: 6 to 75 grams, with 1,300 out of 1,400 ends ranging from 11 to 40 grams: length of yarn under strain: 12 to 15 in.; spindle speed: 9,400 to 11,800; average temperature: 77 to 91° F.; average relative humidity: 40 to 62%.

Redrawing—Machines: Atwood, U. S. Textile Machine, Fletcher; tension: 11 to 70 grams, with 1,255 out of 1,400 ends ranging from 21 to 45 grams; length of yarn under strain: 17 to 28 in.; density of redrawing spools: 11 to 70; yarn running speeds: 67 to 352 yd. per min.; average temperature: 76 to 83° F.; average humidity: 49 to 68%.

Copping or Quilling—Machines: Universal; tension: 31 to 80 grams, with 329 out of 460 ends ranging from 56 to 70 grams; density of quills: 61 to 90; average temperature: 75 to 83° F.; average humidity: 45 to 71%.

The variation in tension and other conditions in the several operations was greater in some plants than in others. For example, tension in winding in one plant ranged from 16 to 70 grams, while in another all of the ends measured were operated within the comparatively narrow range of tension of 31 to 60 grams. A supplementary survey made in five throwing plants operating on 75-, 100- and 150-denier viscose type rayon yarn showed somewhat similar variations in tensions, speeds, temperatures, humidities, etc.

Further reports to be made by the committee will discuss the results of an investigation of the possibility of making uniform rayon crepe fabrics from normal deliveries of rayon yarns; the results of an investigation of the relative importance of variations in each process in the manufacture of rayon crepe dress fabrics; an investigation of the variations in normal deliveries of raw rayon yarns; and an investigation of the influences of variations in the dyeing and finishing operations upon the finished fabric. Readers are cautioned against drawing conclusions until the Rayon Crepe Research Committee issues its final report.

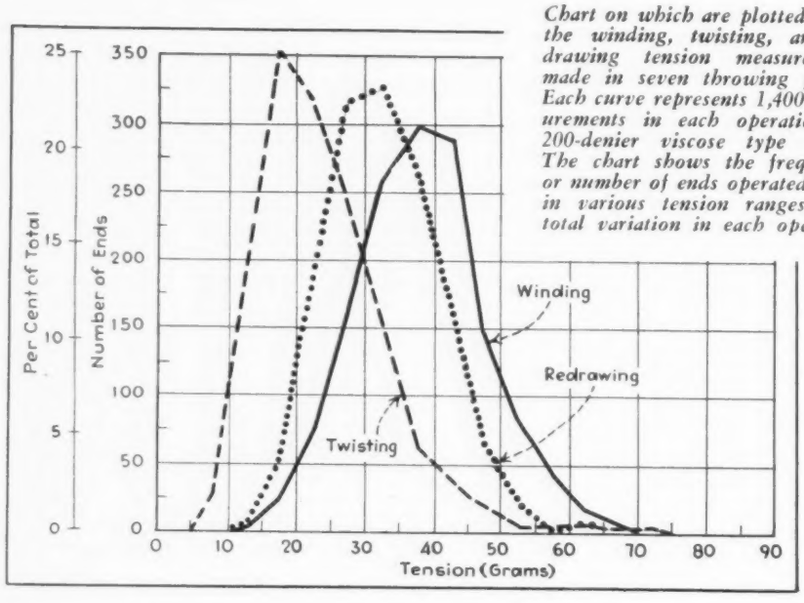


Chart on which are plotted all of the winding, twisting, and redrawing tension measurements made in seven throwing plants. Each curve represents 1,400 measurements in each operation on 200-denier viscose type rayon. The chart shows the frequency, or number of ends operated within various tension ranges; and total variation in each operation

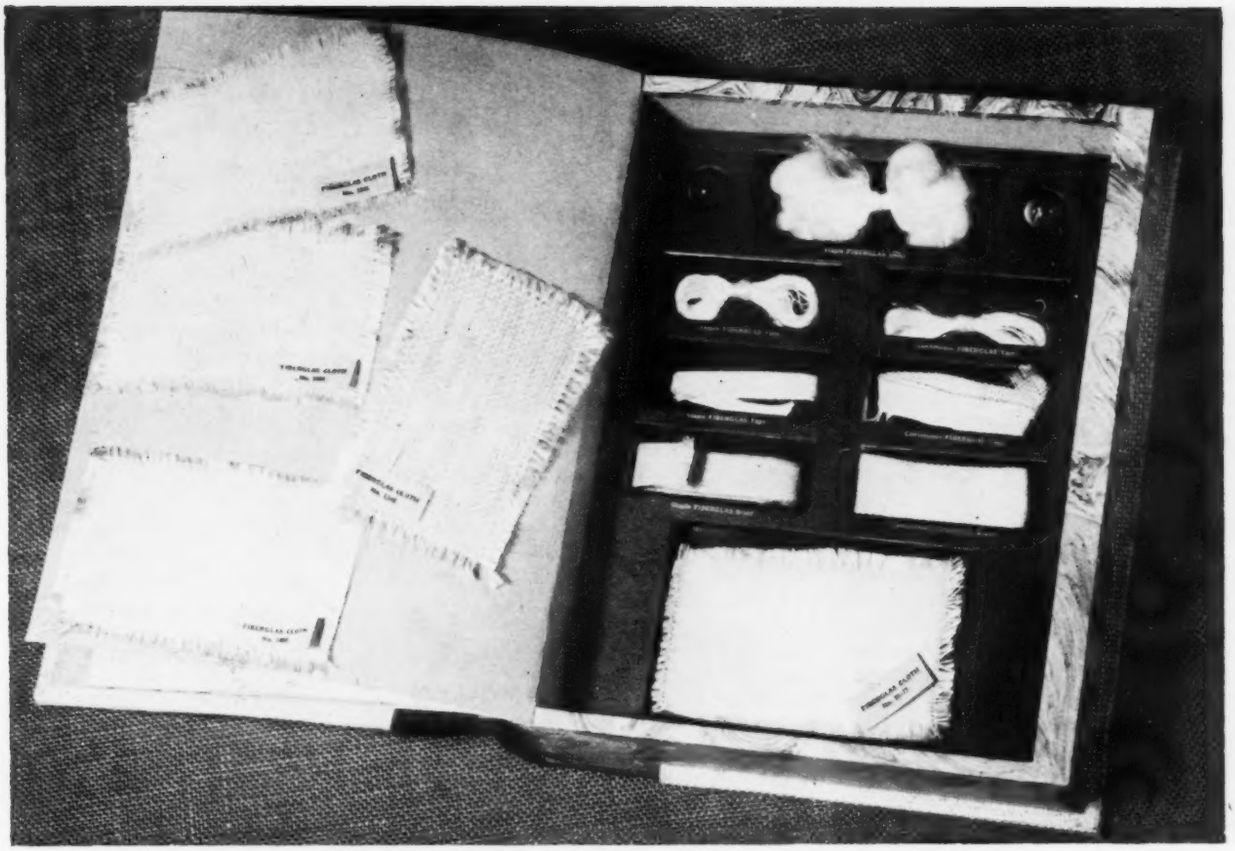


Exhibit showing stages in manufacture of glass textiles—top row: glass marbles and sliver produced therefrom; second row: staple yarn (left), continuous-filament yarn (right); third row: tapes woven from staple yarn and filament yarn; fourth row: braids made from the two types of yarn; bottom row: Fiberglas fabrics

Progress in manufacture and use of

Glass Fibers

demonstrated at Owens-Illinois laboratory dedication

METHODS employed in the production of glass fiber and progress in the fabrication of glass textiles were demonstrated to a group of scientists, technicians, and journalists who attended the dedication, Oct. 20, in Newark, Ohio, of a new research laboratory recently completed by Owens-Illinois Glass Co. Fiberglas, the name given to the glass fiber produced by Owens-Illinois, is now being made by two processes—the continuous-filament process, and the staple-fiber method.

In each process glass marbles are fed into an electrically heated furnace which has a trough or V-shaped bushing made of metals of a higher melting point than glass. In the continuous process, molten glass, entering the wide top end of the bushing, is "drawn" downward by gravity, the glass emerging from 102 tiny holes in the bottom of the bushing. The filaments, averaging 0.00025 in. in diameter, are combined to make one strand measuring 0.024 in. in diameter for winding on spools. The spools are transferred to textile machines for fabrication of the filaments into insulation tapes and cloths.

In the staple process, the molten marbles are forced downward through holes of the same type as in the continuous process, but, instead of being "drawn," they are blown downward by steam under high pressure. Passing through a burst of flame to eliminate moisture, the fibers gather upon and are drawn from a revolving drum. The accumulation or "sliver" follows grooved wheels to be wound on revolving spools. Subsequent spinning and weaving operations are carried out on ordinary textile machinery.

One of the glass fabrics now being developed for industrial applications is a filter cloth designed to withstand temperatures of 600 to 700° F. and suitable for handling all concentrated acids other than hydrofluoric. Other cloths are being developed for use in the construction of oil-field gaskets, cylinder-head gaskets, and filter bags employed for filtration of hot gases in ore smelting and removal of flue gases. Experiments are now being made with a special type of glass fiber for electrical insulation work, and Owens-Illinois is planning to offer the electrical industry a complete range of insulating materials, including Fiberglas yarns running from 150 to 140,000 yd. per lb., multiple-wound packages of fine yarn for insulation of magnet wire, woven tapes from 0.005 to 0.035 in. thick and ¼ to 6 in. wide, and tapes for slot insulation made from bonded mats of fibers.

Glass fabrics for draperies, curtains, and furnishings are being experimented with. Other contemplated uses of glass textiles are for table cloths, napkins, and similar items. A possibility now being investigated is the use of glass fabrics as wall coverings.

Beam Dyeing

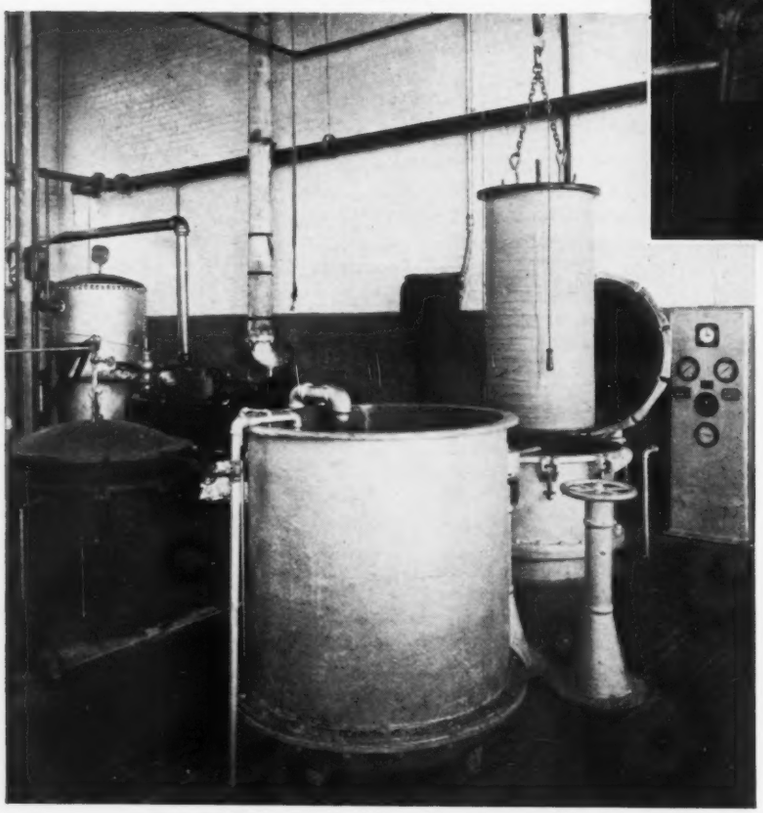
in South continues to increase in importance in step with technical improvements

BEAM DYEING in the South has grown from a few scattered installations fifteen years ago to an important part of the dyeing industry. Today there are estimated to be from 75 to 100 mills using beam dyeing equipment of one type or another. At the beginning there were a number of different types of machines on the market, all rather crude as compared with the present machines. Some of the devices had large kiers that would hold three or four beams at a time. Others were built for only one beam. All had a complicated valve arrangement.

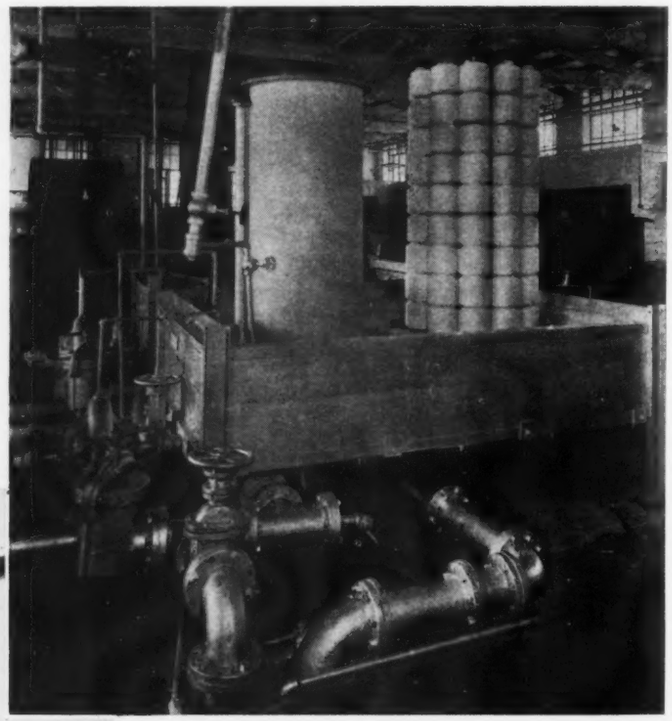
Most of the early machines were imported, but about 1921 a group of Southern mill men and dyers saw an opportunity for the manufacture of machines in this country. They formed a company, studied dyeing processes in the United States and in foreign countries, and finally constructed several experimental vertical-type machines which were soon put into commercial production. About the same time another company put on the market a machine with a horizontal kier. Improvements were continually made in all types of machines until they reached their present state of development. Package dyeing equipment was also improved during this period. Today, most beam dyeing machines will also dye yarn in packages.

As machinery and equipment for dyeing yarn on beams became better established, there developed a demand for bleached yarn on beams. The open-type bleaching machine was the result. Usually peroxide is employed as a bleaching agent, and the machines have successfully handled both package yarn and roving. Manufacturers of the machines assert that there is a saving in chemicals, bleaching time, and labor cost.

One of the most important factors in beam dyeing is the winding of the yarn on to the dye beam. In early pressure-dyeing machines dyers found it almost impossible to keep the yarn from blowing because of improper density of warp. In an effort to correct this and other troubles, a warp-density control was developed for use with any type of warper. It permits the winding of yarns from warper creels, ball warps, section beams, and slack warps onto the beam at any desired density without stopping the warper for adjustment. Chief advantage is increased evenness of dyeing.

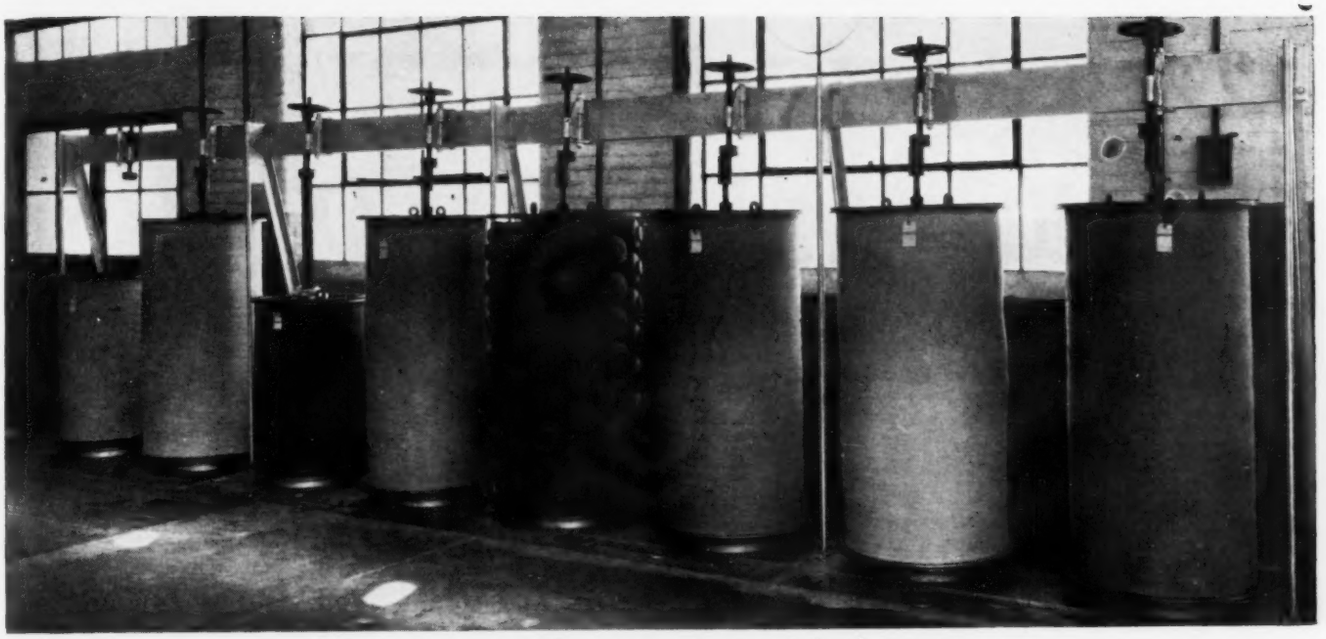


Typical single-kier installation at Lola Mills, Inc., Stanley, N. C., showing vertical-type machine. Note how beam is handled on pulley.



An open-type bleaching machine was developed as a result of increasing interest in beam and package dyeing.

Early beams used in dyeing were of crude construction, and most of them did not have enough open surface (contact of liquor to yarn) to insure even and level dyeing. A number of different types of beams were developed in an effort to offset this deficiency. One type was made with a woven-wire barrel supported by means of specially designed rings on the inside. This beam permitted approximately 90% contact of liquor to yarn, as compared with possibly 25 to 40% on the old-type beams. Another beam was built employing staggered perforations in a sheet-metal barrel, which permitted from 60 to 70% contact of liquor to yarn. There are numerous beams on the market to-



Eight-port dryer and single vacuum-suction port designed to remove excess moisture from the yarn and dry it by means of a forced hot blast.

day designed along the lines described.

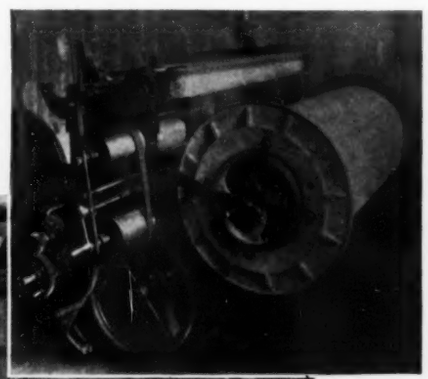
The next step in the development of beam dyeing was the improvement of extracting and drying equipment. In the early days extracting and drying were not taken very seriously, even after relatively satisfactory beam-dyeing machines had been developed. However, as soon as the industry awoke to the importance of extracting and drying, various systems of carrying out these operations were perfected. Vacuum extraction is universally used today, and most of the systems will remove excess water from the yarn very quickly. The yarn is then dried either in a dry-house or by means of a blower device. The latter method consists of placing the beams after extraction over hot-blast drying ports which dry the yarn within a very few hours. The machines are equipped with air filters when light shades are in process to prevent soot or dirty air from being blown into the yarn. Many mills dyeing yarn on beams find it helpful to dry the yarn before putting it across the slasher. This causes the yarn to take up considerably more size and reduces the possibility of loss of elasticity. Many weavers assert that drying beam yarns after dyeing results in better weaving and speeds up production.

Cotton yarn, 10s to 40s, single and 2-ply, is usually dyed on beams. Finer yarns are generally dyed on packages. Some rayon has been attempted on beams. Direct, developed, and vat colors can be used, but careful selection is necessary. Sulphur and naphthol colors also are used to some extent. Undesirable particles, or dyes easily thrown out of solution, may cause trouble in passing through the yarn.

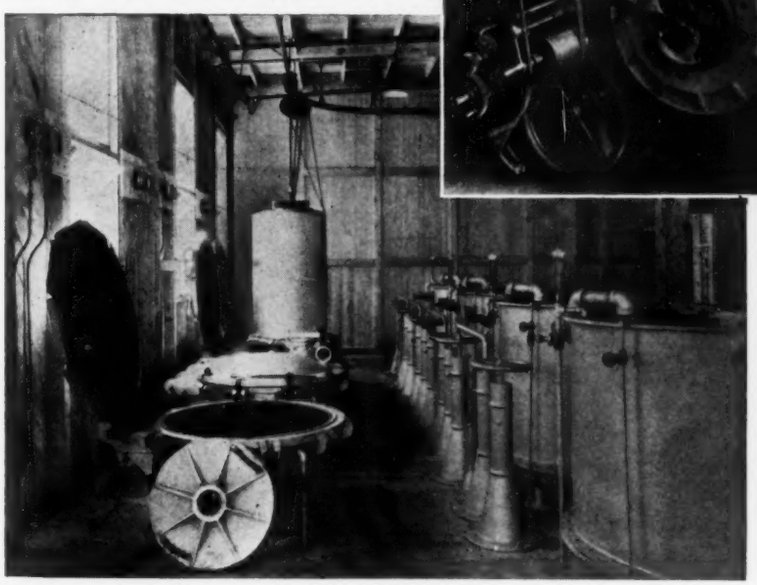
Beam dyeing has many advantages. One of the main purposes is to reduce cost by eliminating much handling of dyed yarns, such as winding and warping. Another advantage is that the yarn can be spun in the gray and held ready for any put-up or any number of ends which might be put into a set of warps. The beams can be made in sets and dyed accordingly, without leaving a lot of waste yarn lying around on spools or tubes, or in the form of dyed raw stock. It is possible to dye a certain number of beams one shade and others another shade, or take white beams, and make a striped warp by simply dyeing the number of beams to give the required number of colored threads in any pattern desired. This last can be accomplished by beam dyeing in a much shorter time and with less waste than if the cotton were dyed and brought through the mill.

There is no doubt that beam dyeing is here to stay as part of the textile industry. Manufacturers are continually improving the equipment, and emphasis is in the direction of beam or package dyeing where practicable. In many instances mills that have other methods of dyeing are finding that a battery of beam dyeing machines fits very well into the scheme of manufacture—all of which adds to the growing importance of this method of dyeing.

Warp-density control permits winding yarn on beams at any density from warper creels, ball warps, section beams, and slack warps.



Multiple-kier installation at Roanoke Mills Co., Roanoke Rapids, N. C.



Photos, with exception of multiple-kier installation, courtesy of Gaston County Dyeing Machine Co.

Changes and adjustments necessary to be made by loomfixers when

Changing to Flat Quills

By H. E. Wenrich

In the November issue Mr. Wenrich described the advantages obtainable by changing over looms to flat-quill operation. He also noted the fact that flat-quill operation requires extra lengths to be welded to the protector-rod dagger-points and outlined a method for determining the proper lengths to be added. He now discusses the further changes and adjustments which are necessary.

IN ADAPTING looms to the handling of the large shuttles necessitated by flat quills the first step, after the protector rod has been removed and sent out to have extra lengths welded on to the dagger ends, is to remove all parts with which the change is concerned on the plain side of the loom. These include angle lever; vibrator, complete; shuttle box and shuttle-box rod; box guide, front, and top; etc. All parts removed should be placed in the aisle alongside the loom, out of the way of both weaver and loomfixer.

After removal of these parts, proceed at once to change over the plain side of the loom. Mark off the part of the lay top which requires cutting out for placing of steel plates. This is shown in Fig. 3. If the top of the lay extends into the shuttle box in a solid strip, the portion can be cut out with a sharp wood chisel. If the top of the lay is composed of a separate piece extending from front to rear of shuttle box, the piece can be removed and cut with a hacksaw. The two steel plates are secured to the lay by means of screw bolts as shown. Make a neat job on this placement and sandpaper sharp edges of the wood so they will not cause cutting of the filling as it rides along.

Now replace the back swell, if necessary; or, if the old one is used, sand the front to a clean, smooth surface. Place the new, large leather picker on the picker stick. Make sure the picker does not bind against the back swell. It may be necessary to grind a small amount off the back of the picker and/or to file a bit out on the inside. At any rate, the picker must work freely. The heavier shuttles used with flat quills will probably require more pick. This should be secured with the picker stick; not by moving the pick shoes.

Next, put on the new top guide or, if the old one is used, plane off the bottom for a new surface. Insert a shuttle in the box and adjust the top guide, placement of which is shown in Fig. 4. Put on the box front and secure it to the steel plate with two stud bolts (Fig. 3B). The box front should be placed in such a position that the end nearest the center of the lay will be slightly open—approximately 1/16 in. farther from the shuttle than the end farthest from the center of the lay. The shuttle should work freely enough so that it will not rebound and still be tight enough to hold inside the box. Use the shuttle-binder spring for making this adjustment.

We now turn our attention to the box side of the loom. Remove the box lifter-rod from the old box and place it on the new, large box. Install the box front and the rawhide picker. Make sure the shuttle box will move freely up and down in the box guides without binding.

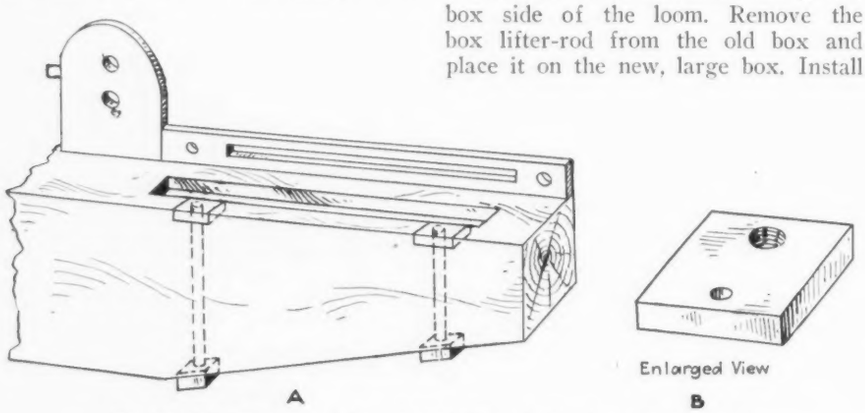


Fig. 3. (A) Section of lay, dotted lines indicating where top is cut to receive steel plates and screw bolts. (B) Steel plate, showing relative positions of screw—and stud-bolts

If the loom is equipped with a vibrator-type box change, take out the three rivets holding the vibrator connector and vibrator blade, then remove the old vibrator gear and replace with the new gear. This new gear must work freely, as any binding of the vibrator gear will cause the box to jam while the loom is in operation. Note carefully the vibrator gear shown in Fig. 5. This gear must be in the exact position illustrated, the hole *A* being on the side shown when *B* is on top in relation to the vibrator blade.

In installing the vibrator gear, place the center roller in the proper hole and use a square rivet to secure the gear to the vibrator lever. Next place the long-slot roller in position and move the gear so it will force the roller to line up with the hole. Rivet the roller in place, using a round rivet. Now take the third and last roller, put the vibrator connector in place over the gear, and rivet the roller in place. It is advisable to use new key stock for the square rivets and to mushroom the heads of rivets on each side so they will not work loose later and come out while the loom is in operation.

(Should the vibrator connector be worn from constant use of drop-weight lever, as shown at *C* in Fig. 5, grind off the damaged surface on an emery wheel and finish smooth with a fine file. Contour of the vibrator connector should be kept as nearly correct as possible so the finished result will be neat and satisfactory).

In testing the completed vibrator, place the heel of the vibrator lever in a vise and work the vibrator connector back and forth to make certain it moves freely. Loosen all points of the gear which bind. Place the completed vibrator back on the loom.

Fig. 6 illustrates the compound or angle lever. Remove the lever tip and grind along dotted lines *A* so the lever tip will fit lower into the slot when replaced on the angle lever. This grinding should be done carefully and accurately, as the lever must not fall deep into the angle-lever slot in case the setscrew becomes loose.

Should the setscrew *B* be found to be broken off flush with the metal, remove the broken tip and insert a new screw.

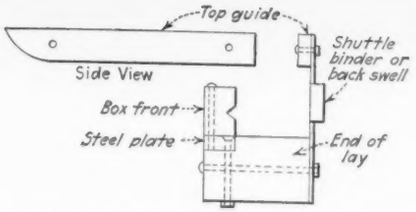


Fig. 4. End view of lay, showing box front and top guide.

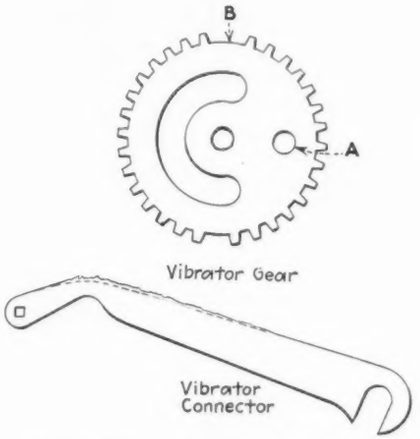


Fig. 5. Vibrator gear and connector, showing proper position of holes in gear, and method of grinding off worn parts of connector.

Cut the top off the compound lever, as shown by dotted lines *C*. This will permit easier adjustment when leveling the shuttle box. Replace the lever tip in the angle-lever slot and put the completed compound lever back on the loom. Leave the lever tip at the extreme bottom position until adjustment of the box with the race plate.

Now turn the lay over a few times to line up the new box with the race plate and to ascertain whether the box is working correctly. The outside box guide must be adjusted to allow the box to slide freely in the front and back grooves. Should the box bind at any point while the loom is in operation, broken shuttles or a smash may result.

Pack leather in back of the rawhide picker so it will extend in front of the box guide at least 1/16 in. As the shuttles wear, they will eventually press the

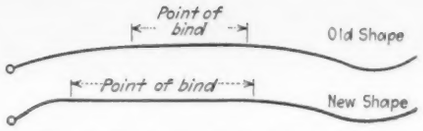


Fig. 6. Compound or angle lever, dotted lines indicating points at which it should be ground down.

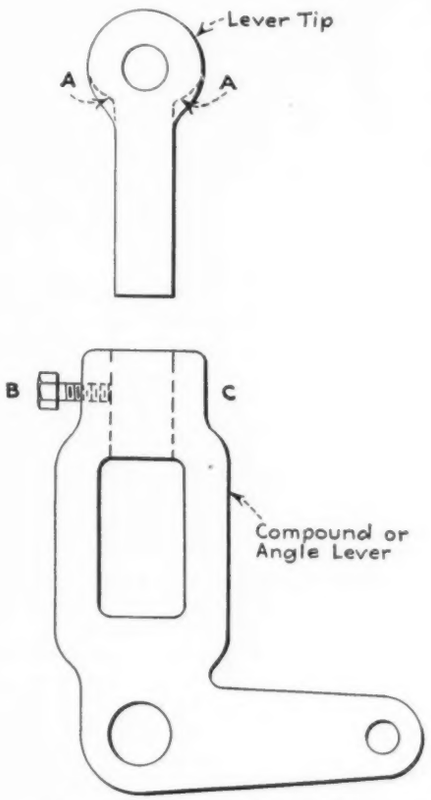


Fig. 7. Edge view of shuttle binders, showing how they are reshaped to give more binding surface.

picker back, as well as wear a hole in it, creating the proper alignment of the picker with relation to the pick.

Inspect the check strap and make certain it is functioning properly. The heavier shuttles will require a trifle more check than lighter ones.

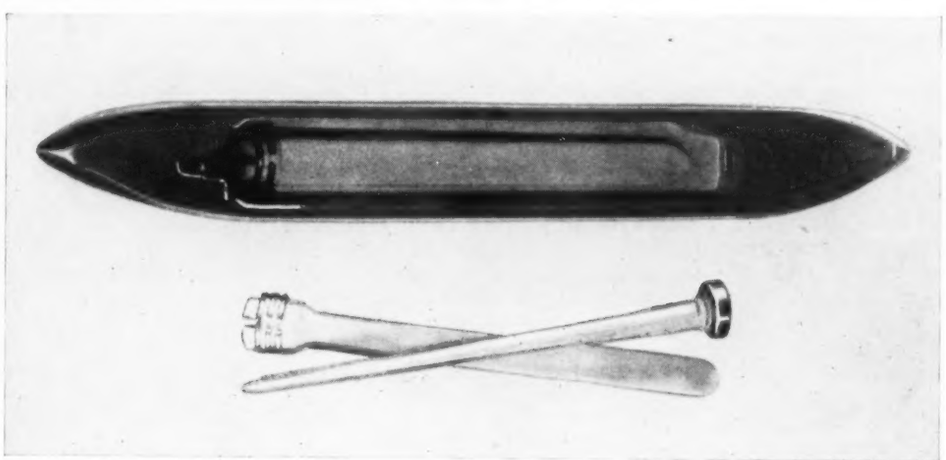
Remove shuttle binders and reshape them as shown in Fig. 7. The revamped shape gives more surface for the shuttle to be checked with, as well as held in place by, and requires less tension on the binder spring. This is an important adjustment and should not be overlooked. Tight binders and springs cause shuttles to jam in the boxes when the boxes are changing from one position to another.

Grind protector-rod points clean; then replace the rod and adjust it. Make sure each protector-rod dagger-point is the same height in the knock-off plates. Have sufficient spring to insure the rod functioning properly. The dagger on the knock-off side should be slightly longer than the other, to knock off the handle before banging.

Looms so adapted should be tested, as follows: Line up a reed in the lay and run the loom idle for a few moments to make sure that the boxes run freely when the loom is in motion. Put plenty of oil on all working parts. Fur the shuttles and place an empty quill in each. (Shuttle spindles may break off if the shuttles are run without quills.) Place shuttles in the loom and make a few picks. Make adjustment of box swells when necessary. Run the loom a few minutes while watching the pick. Place on the proper pick if necessary. After these adjustments have been made, run the loom at least half a day to break it in. Meanwhile make any further adjustments required.

During the time a loom is being broken in the fixer can be changing over another loom, and at the same time making any necessary adjustments on the loom already changed. For instance, it may be necessary to raise the filling fork to prevent the shuttle hitting it when the loom is in operation. Where low sheds are found, raise them so the shed will be at least 1/16 in. above the front top edge of the shuttle. This is advisable because low sheds wear grooves in the front top shuttle edges and also cause shuttles to fly out.

Fixers should give careful attention to small details in making the changes outlined in this article. Such attention amounts to little extra work and results in the looms giving less trouble to the fixer after they are in operation, and helps increase loom production.



Large shuttle and flat quills

Long-Draft Roving

Why it is possible and profitable in present-day cotton-mill operation

By A. K. Landau

Saco-Lowell Shops

INTRODUCTION of long-draft roving equipment such as is today available to mills involves no revolutionary departure from the method of drafting with which all mill men are familiar. The various systems are more or less simple and are easily mastered after the first principles are grasped. Mechanical difficulties introduced are practically nil and most successful systems used today are trouble-proof when given proper care and attention.

These innovations will, like all other departures from the conventional, have to prove their value to those mills which are reluctant to depart from time-tested and standard methods. But the mere fact that mill after mill is being won over to the new technique is satisfying evidence that long-draft roving, like long-draft spinning, is here to stay. It is a development which must be recognized and adopted by those mills which do not wish to lose their competitive position or to sacrifice a portion of their profits to costly and unnecessary processes.

Extension of the practice of long-drafting, resulting from introduction of efficient equipment to do this work, has led to many changes in accepted routines and what were formerly standard methods of cotton yarn manufacture. These changes have taken place in the short space of ten years, more or less, and have brought about modifications in practically every well-established practice in the mill.

Development of long-draft systems for the card room and the spinning room has been simultaneous with development of better methods in the opening and cleaning processes. Without the new methods and equipment in preparatory departments it is doubtful whether the practice of long-drafting would have become as successful as it is today.

In former years, manufacturers believed firmly in the benefits of doublings. They felt that the ultimate in yarn quality depended upon the number of doublings to which the stock was subjected. In order to obtain the doublings needed to produce smooth and even yarn, the mill of thirty years ago used three processes in the picker room, resulting in 64 doublings. This was followed, in the ordinary mill making up to 40/1 carded yarn, by two processes of drawing, each with six doublings, making the total number up to this point 2,304. Then would come, in the regular order, slubber without doubling and intermediate and speeder with two each, bringing the total to 9,216. Finally, with double roving in the spinning creel, the total number of doublings reached 18,432.

The calculated draft, from card sliver to final 40/1 yarn, was approximately 265, but the actual machine draft, due to the doublings secured in the processes from carding to spinning, reached the astounding figure of 51,840.

The normal difference between yarn made from double roving and that made from single roving is the reduced amount of variations caused by thick and thin places. Theoretically this reduction is the result of averaging out variations in the separate strands which have been combined in making doublings. But it is essential that this statement be accepted with reservations, not taken too literally without considering other factors.

Irregularities Not Eliminated

As doublings can be beneficial only where irregularities exist, the frequency and degree of such irregularities are factors to be considered. The degree of uniformity obtained in doubled material, after allowing for the averaging-out effect of the doubling, will depend on the degree of unevenness in the separate strands before combining. It is important to keep in mind this fact: the process of doubling can never, except by chance or accident, remove or nullify the effects of variation originally in the sliver or roving. A defect in the roving, especially following drawing, will in all probability remain as a defect to the end. It may be reduced, but never entirely eliminated.

Irregularities appearing after drawing are generally produced either by tension on the strand or by drafting. They are entirely different in type from those encountered earlier in the manufacturing sequence. For example, those defects created by drafting are in general successions of thick and thin places, resulting from faulty fiber control, excessive drafts, or machine defects.

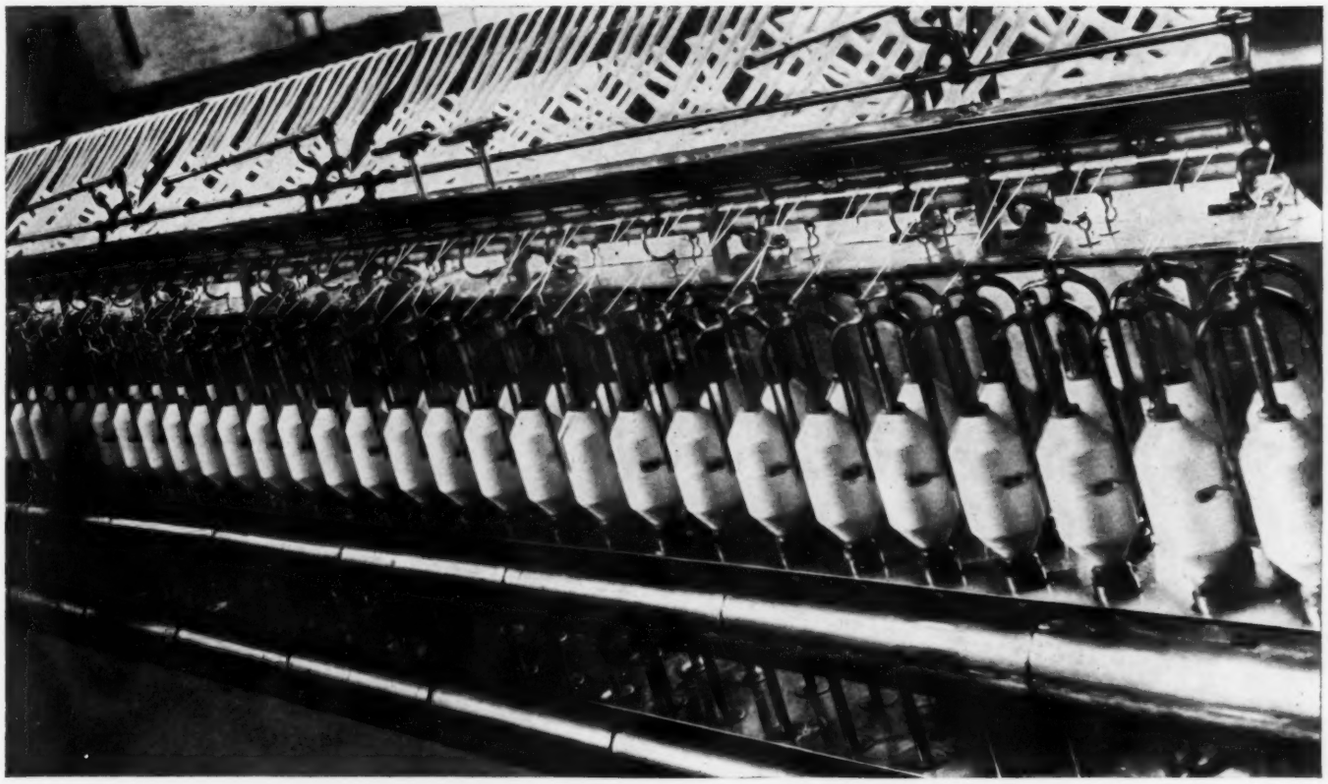
As a rule such irregularities will not have a serious effect on the count of the yarn, as the pattern of these thick and thin places will be comparatively short. In other words, when a skein of yarn is reeled preparatory to making a sizing test, it is probable the number of thin and thick places will balance each other. In this manner the defect does not become apparent unless the yarn is subjected to close and careful examination.

On the other hand, variation caused by tension makes the yarn lighter. The intervals of variation will depend upon the cause of the defect, and the effects on the yarn will depend on its original source and character. If these faults are caused during drawing, the intervals in the yarn will be long, due to the draft developed in intervening processes. If the faults are produced in the roving processes, the intervals will be shorter.

For example, a 1 in. long thin place in the first drawing sliver will be 24 in. long by the time it passes the slubber, 120 in. long when it passes the intermediate, and 720 in. long when it passes the speeder. At the same time the amount of the variation may be reduced so that it is not more than 25% of what it was originally. On the other hand, a bad place 1 in. long in the intermediate roving will be drawn out 6 in. and will pass to the spinning frame without further alteration. In any event, these faults can be reduced as a result of doubling, but never removed.

There is no doubt that manipulation of the strand causes a tremendous increase in the number of short-length variations and irregularities. It is these short and indeterminate defects which cause those variations in yarn number which are so difficult to trace without special testing equipment, technical knowledge, and experience in research of this kind.

It has been proved that the present-day card sliver, made from stock which has been properly opened, cleaned, and blended, is the most even intermediate product in a mill. When a mill has good facilities for these preparatory processes, it should produce a lap with at least 98% of its yardage within $\frac{3}{4}$ oz. of the standard weight. With a card in good working order, and the weight of the lap well distributed across the sheet, a sliver with no more than 12% variation will be obtained. This means there are practically no linear irregularities of sufficient importance to cause



Adoption of the long draft roving technique will add to the flexibility of the mill and reduce cost of changes to a minimum

trouble and, as far as weight distribution is concerned, no advantage is gained by continued manipulation.

If only evenness and uniformity were concerned, this sliver could be placed at the back of the long-draft slubber for direct conversion into roving for the spinning creel. But, due to lack of parallelism in the fibers, it is necessary to put this card sliver through one or more drawing frames. The resulting drawing sliver, if obtained under ideal conditions, will contain variations reaching a normal of 25%. In actual mill operation variations may reach 40%, and the drawing still be considered good. An ideal drawing, after passing the slubber and having all the benefits of doubling, will vary from 45 to 60% without exciting any unfavorable comment. It is true that, yard for yard, these intermediate products may be even, but inch for inch they fall far below the relative uniformity of the card sliver from which they were produced. These variations continue in amount and intensity and can be seen in practically any yarn which is carefully examined, especially under a magnifying glass.

In modern long-draft technique, the blending formerly accomplished in the card room and spinning room is now done better and at lower cost in the opening room. Large mixes, premanufacturing conditioning, and efficient cleaning and opening bring the stock to the cards in very good condition—in firm, even laps with gross impurities extracted to a high degree.

Under present conditions in numerous mills openings contain from 15 to 40 bales. In such cases, the mixing of the stock by the time it reaches the first roving frame will be of the order of 300 to 720, depending on the number of bales in the mix and the character of the processes between carding and the first roving process.

Since it is now practically possible to obtain a sliver with the stock thoroughly blended and with no more than 12 to 15% variation, the quicker this stock can be prepared for spinning the lower will be the cost, the number of short-length irregularities, and the extent of their variation.

Balanced Drafts Best

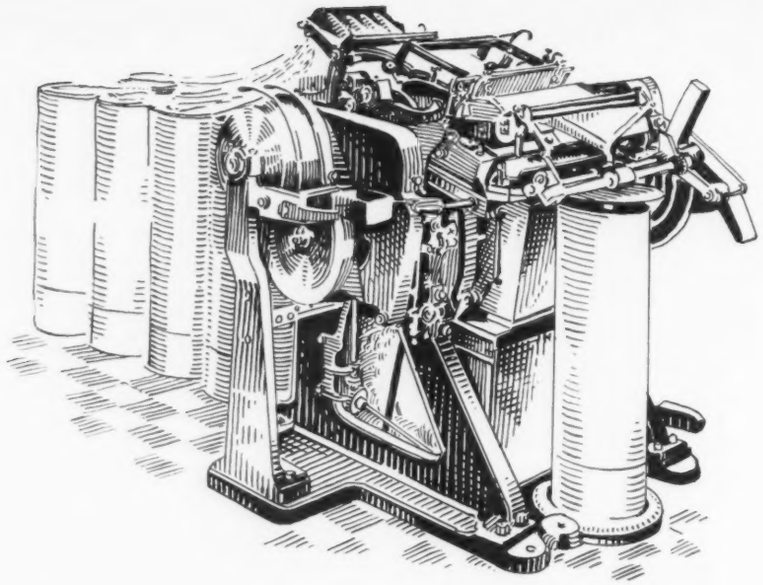
It does not follow that the best results obtainable with long-draft roving and spinning will be attained by using either abnormally high or abnormally low draft. In the former case costs will be reduced and in the latter there may be some gain in strength or quality. Use of either extreme is probably unwise. Best results are obtained when drafts are balanced, the extent of each drafting being related to the length of the staple and the mass to be drafted.

Likewise, the amount of draft that can successfully be used depends on the general character of the cotton and the character of preparation prior to drafting. Short, coarse, tough-body cotton will not stand the same draft as that possessing fine, silky staples.

Use of efficient long-draft systems, either in the card room or spinning room, will, as a rule, raise the draft considerably beyond what has been considered normal in connection with the more conventional system. The extent to which this draft can be raised will vary, but if the drafting rolls are properly designed, and the weighting accurate and sensitive to changes in fiber mass, an increase of 100% should easily be attained. And even with such an increase the final yarn or roving should be entirely satisfactory.

This increase in drafting range, especially in the roving frame, is of utmost importance, since it has an effect on the variety of roving weights necessary to produce a wide range of counts. In those mills spinning a number of counts, the ability to do so from two or three rovings will be of great advantage. It will add to the flexibility of the mill and reduce cost of changes to a minimum.

There is no question that an increase of 5 to 10% in strength, together with greater uniformity, will have a good effect on the running of the spinning and also on the efficiency of the winding, twisting and/or other processes which follow. The quality of the yarns will be improved and there will be more regular distribution of the twist. Further, it may be possible, if the strength of the yarns is more than demanded, to increase production by reducing the twist multiple. This factor will have an important bearing on mill costs.



Accurate Machine Settings

Are of primary importance to production of good work on the French comb

By John C. Lowe*
Lowell Textile Institute

PROVIDED the stock is in proper condition and the temperature and relative humidity are satisfactory, there remains the question of proper settings to produce good work on the French comb.

Comb Settings

1. *Feed.* Feed is, or should be, controlled by the movement of the feed roll. On most combs the feed gear is a ratchet which moves one tooth per nip regardless of its size. Some modern combs do not change the ratchet gear. Instead, a large-size fine-tooth ratchet is used and the pick may be varied, using three, five, or seven teeth as desired. Increased feed gives more production, a slight increase in noil, and less efficient combing. The results obtained, therefore, should control the feed.

Always set the feed pawl so that it moves the feed gear the required amount per nip, and time its movement so that it is not "late" to the movement of the feed comb and feed grate. Feeding takes place during detaching; and the feed comb is down, holding the lap securely. Both the feed comb and feed grate should move in sympathy with the feed rolls, but should develop a little tension so that the lap lies smooth on the plates between feed grate and feed rolls. If the feed comb develops too much tension, it will result in an uneven veil with "cuts" from time to time. If it is excessive, the tension increases and then the lap drives the feed rolls and a very excessive feed results, which may cause laps at the detaching roll. This setting is important, so watch it closely whenever a new lot or a new grade is being combed.

2. *Setting of Nip to Cylinder.* The rule in setting the nip to the cylinder is to set as close as possible, about 0.6 mm. to 1 mm. for fine wools. Test all segments on the spare barrel for concentricity and for bow. Good combing is impossible unless the pin shop cooperates, so that the set of the strips and the pinning are both perfect.

3. *Bur-Knife Setting and Needle-Strip-Cleaner Setting.* In connection with the cylinder, the bur knife should be in action when difficulty is experienced in removing very fine particles of vegetable matter. When the bur knife drops in position, it should be not more than 1 mm. from the pins. As it is dropping, its edge should just touch the bristles of the dab brush. For shortest and tenderest wools just have it clear the dab-brush bristles. When the bur knife is about 12 mm. from the nipper, it should be raised so that it clears the pins of the segments. Too close settings of the bur knife may increase the noil. Too open settings may render it useless. The needle strip cleaner should be tested every time a segment is replaced. Using the spare barrel, adjust the blades so that, when it is in its deepest position, it is 2 mm. below the active part of the pins.

4. *Dab-Brush Setting.* The dab brush must be set so that the needles of the cylinder just stir the bristles. Too deep setting of this brush can increase noil from 1 to 2%. Watch this carefully. When the brush is badly worn, singe the brush and reset.

5. *Timing of the Cylinder.* The first row of pins on the preparer segment should be combing just as the nip reaches its lowest point. The eccentric gear on the end of the cylinder shaft allows of this adjustment.

6. *Setting of the Feed Comb.* Make the feed-comb setting when feeding is complete. There must be 2 to 3 mm. between the front of the feed grate and the side guides on the nipper plate. If the feed comb can be raised without touching the top nip plate, then the setting is correct. The feed-comb must rise high enough so that the wool will not be touched during the backward movement. Be careful of this setting.

7. *Nip Setting or Setting of Detaching Rolls to the Nip.* The nip setting

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controls the percentage of noil, and it must be made when feeding is completed, because at that time the detaching rolls, top comb, and shovel are in position for setting with the detaching rolls still in the nearest position to the nip and with both the top comb and shovel in their nearest position to the detaching rolls. Whenever the setting of the detaching rolls is changed, it is necessary to reset the top comb and the shovel. Always try the nip gage on both sides of the comb whenever a change is made. Perfect alignment of the nip of the detaching rolls with the front line of the nip is essential. On the P.L.B. model French comb, whenever the nip setting is changed, the straight draw is interfered with and it is necessary to adjust the bottom nip until the gage fits snugly against the top nip plate. Setting must continue until the three contact points of the special gage are accurately engaged. On the S.A.G. model French comb there is only one setting because the straight draw is not interfered with.

8. *Top-Comb Setting.* Set the comb so that feeding is just completed. Turn the top detaching roll so that the lines of two flutes will be parallel with the face of the top comb. Now loosen the top-comb frame, right and left, and set it as near to the detaching roll as is possible. Space equally on both sides, using gage. This is setting for distance. To set for depth, loosen the bolts holding the top-comb plate to the frame and, using the shovel as a gage, adjust the top comb until the pin points can just be felt disturbing the end of the finger as it is held under the shovel and drawn against the top-comb pin points. Make these settings carefully. Upon closeness depends clean combing. Upon depths depends easy detaching.

9. *Shovel Adjustment.* After setting the top comb, adjust the shovel. The edge of the shovel must be from 1 to 2 mm. from the top-comb pins. When set, it moves in sympathy with the top comb and the feed comb. When the top comb is set for depth, it should be out of control of the lever which raises and lowers it. Set the bowl on the top-comb frame so that there is a clearance of about 1 mm. between it and the lever.

10. *Regulation of Pressure on the Detaching Rolls.* There should be a nice even pressure on the detaching rolls. This must be obtained when the comb is actually combing. Defective detaching results from not enough pressure, excessive pressure, and uneven pressure.

11. *Sword Adjustment.* Set the top sword to within 0.5 mm. of the middle point of the detaching rolls. A good, clean piecing is dependent upon this setting. In addition, the top sword should be set so that, when feeding is completed, there is about 2 mm. between the edge of the top sword and the face of the top-comb plate. When needed for the longer wools, the top sword should be given such a movement that it will draw the tails of the longest fibers through the top comb before the nip closes. When the top sword is passing the bottom sword, adjust the latter to within 6 or 8 mm. of the top-sword blade.

12. *Rotation of the Detaching Roller.* The rotation of the detaching roller is varied to suit the length of wool: short wool, less rotation, and long wool, increased rotation. A slot in the quadrant foot is numbered 1, 2, 3, 4 and 5. No. 1 position gives the greatest rotation of the detaching rolls. Usual position for fine wools is at 4 or 4.5. Very short wools may use No. 5 setting. The piecing-up segment can be adjusted one or two teeth to obtain more of an overlap or less as desired. Whenever the quadrant setting is changed, be sure to check the setting which governs the time when the rolls shall commence detaching—their forward rotation. On the P.L.B. model set the stud at the upper end of the connecting arm so that the slot is over the center point of the crankshaft when the bowl is on letter *A* of cam 14. Always be sure to have the teeth of the segment in line with the teeth of the quadrant. On the S.A.G. model it is possible to adjust the quadrant fulcrum or bearing vertically to compensate for wear of the gears or segments. This makes for a decided improvement.

13. *Regulation of Tension.* The press rolls should have a slight lead over the actual delivery of the detaching rolls. This can be regulated by movement of rack-rod stud in slotted arm. More tension results when it is moved away from the quadrant bearing. Always examine the end in the can before deciding that the end is all right. Use as much tension as is possible without producing unevenness, because a smoother and stronger end will result, which will handle well at the assembler gill box.

14. *Noil Removal: Setting of the Brush, Doffer, and Doffer Comb.* Set the Circular Brush within 4 mm. of the smooth surface of the cylinder.

Have about 0.2 mm. between doffer wire and the brush—close enough without actually touching. The brush may be set simultaneously or separately to the cylinder and the doffer, but the setting to one influences the setting to the other. As the brush wears, the cleaning action is reduced; not only does the condition of the cylinder pins show it, but the character of the noil is changed. The noil is rolled and does not look good. Naturally defective combing results eventually, so it is well to check the brush settings from time to time. A change gear is provided so that the brush speed can be either maintained due to wear of the brush, or modified if the speed seems to be too fast for the wool being combed.

Set the doffer comb as close as possible to the doffer, about 0.2 mm.

Near Enough

Most of the settings given are expressed in millimeters. There are 25.43 millimeters in 1 in. This will emphasize the closeness of the settings and the consequent need for accuracy. The old mill attitude of "that's near enough" cannot be used as an excuse for careless setting.

The weak part of the combing is strangely enough the action of the cylinder. The way in which the lap is held by the nip and the path followed by the pins results in imperfect treatment. The very tips of the fibers set down into the base of the pins, but the degree of cleanliness from the tips to where the lap is held by the nipper must deteriorate as the fibers set less and less deeply into the pins. Due to this condition, the nips must be set very close to the cylinder to obtain maximum cleaning of that portion of the lap nearest to the nip. Also the top comb must be set as near the detaching roll as possible in order to recomb as much as possible of the part treated by the cylinder.

The latter statement will explain why it is very difficult to comb, perfectly, seedy or burry wools with a short nip setting of about 19 to 21 mm. To repeat what we have stated previously, as the nip setting is made wider there is a corresponding increase in the recombing done by both the cylinder and the top comb, providing the feed is not increased. This statement also emphasizes the importance of a thorough job at the card, where as much of the vegetable matter should be removed as is possible.

This article is the second in a series of three on the details of operation and adjustment of the French comb. In the first article of the series, which appeared in the October, 1937, issue of TEXTILE WORLD, Professor Lowe discussed action of the cylinder, condition of stock, and atmospheric conditions, as these relate to and have a bearing on, successful operation of French combs.

The current instalment offers an exceptionally practical and useful discussion of machine settings, which are major factors in controlling quality of top and percentage of waste. The concluding article of the series, to be published in an early issue, will discuss procedure to be adopted when starting on a new grade of wool and defects which may be observed on starting a new lot.—Editor.

Loomfixers' Manual

WOOL SECTION CHAPTER III

By Benjamin F. Hayes

Head Motions

Chapters I and II of the Wool Section appeared in the September and November issues, respectively. Chapter I, and two installments of Chapter II, of the Cotton Section, were published in the August, October, and November issues, respectively. Readers who missed them may obtain single copies gratis, as long as the supply lasts, by writing TEXTILE WORLD.

THERE ARE THREE types of head motions used in weaving woolen and worsted fabrics: Gem, for light work; Intermediate, for medium-weight cloths; and Heavy, for heavy-weight worsteds and woolens. All operate on the same principle; hence, remarks referring to a particular type can be applied equally well to each of the others.

Fig. W3 diagrams the harness cylinders of the Heavy type of head motion, and also shows the method by which they are driven. The figure also illustrates the Intermediate head motion, inasmuch as this type is usually used on two-to-one geared looms (looms in which the crankshaft makes two revolutions to one of the bottom shaft) such as that pictured.

The bevel gears at the top of the upright shaft are so designed that they mate with each other only at certain positions; if the keyways in these gears are true to the original gears, as they should be, no trouble should be experienced with adjustments.

Top bevel gears, controlling the top cylinder, wear out much more quickly than do those controlling the bottom cylinder; in fact, the ratio is about ten to one. This, of course, is due to the fact that the top cylinder does more work than the bottom one, in lifting both harnesses and boxes.

As stated, bevel gears mate in only certain positions. This is illustrated in Fig. W4. If, when replacing worn-out gears, the new gears have their keyways out of position, as compared to the originals, the top pair will be either ahead or behind the bottom pair. To remate these gears the loomfixer must cut the top off the tooth that interferes with the pin at the point at which the interference occurs. Care should be exercised in selecting the tooth to be cut, as it is a comparatively easy matter to cut the wrong one.

Many times, for some reason or other, when worn-out gears are replaced, the new gears are not in time with those remaining on the loom; the top cylinder may be ahead of the bottom cylinder or *vice versa*. The two cylinders should, of course, be together, so that the top cylinder connects with the vibrator gear to raise the boxes at the same time the bottom cylinder connects with the vibrator gear to drop the boxes.

Frequently it is impossible to get both these cylinders together, because the keyways in the gears are not cut exactly right. At such times it is better that the bottom cylinder be the one that is ahead. Although the boxes are raised by direct pull and dropped by means of springs and gravity, the vibrator must move to slacken the box lifting chain before the spring and gravity can come into play. As the bottom cylinder carries the lock-knife cam (See Fig. W5), having this cylinder slightly in advance of the other makes it possible to get an earlier shed.

This early shed is often very desirable. Some loomfixers will even cut a new keyway in the lock-knife cam to cause the lock knife to pass in between the vibrators earlier. The writer does not think it advisable to cut new keyways in these cams because, after such cutting, the cam will no longer be on center and will give trouble if the brake does not stop the loom quickly every time the filling breaks. Also, frequently, keyways cut by loomfixers are not correctly placed, and make the lock knife pass in later, when the fixer desires the opposite effect. Fig. W5 shows the lock-knife cam, with the keyway in the center, where it should be. On the latest new looms this cam has been placed on the top cylinder, rather than on the bottom cylinder as shown in this illustration.

Referring again to Fig. W4, in part A it will be noted there is a collar on the upright shaft, below the bevel gear. When the loom is set up, this collar is on the underside of the bearing of the upright shaft. Its purpose is to prevent this shaft from rising as the eccentric drives it. As a matter of fact, a chief contributory cause to the short life of these top gears lies in neglecting to adjust this collar so that it will give steady movement to the upright shaft. If too much space is allowed between the collar and the top bearing of the upright shaft the top bevel gear, and the one with which it engages, will wear out quickly.

In future instalments of Chapter III, Mr. Hayes will discuss other portions of the head motion.—Editor.

Fig. W3. The drive of harness cylinders from the bottom shaft.

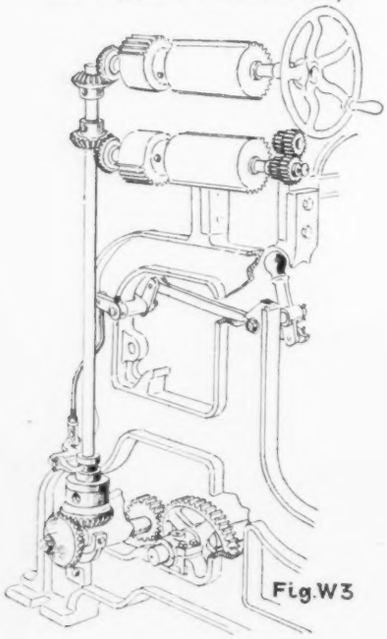


Fig. W4. Timing Pins. A—the "block" method, by casting two teeth together for a portion of their length. B—the "pin" method as used on chain shaft driving gears.

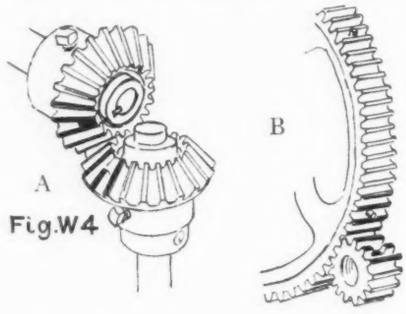
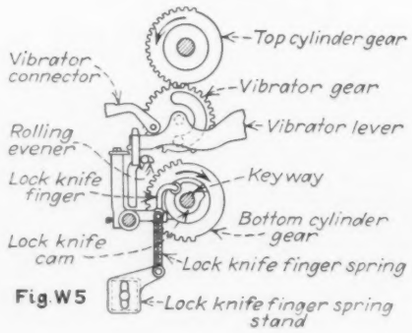


Fig. W5. Portion of a Knowles Head, showing bottom cylinder and lock-knife assembly.



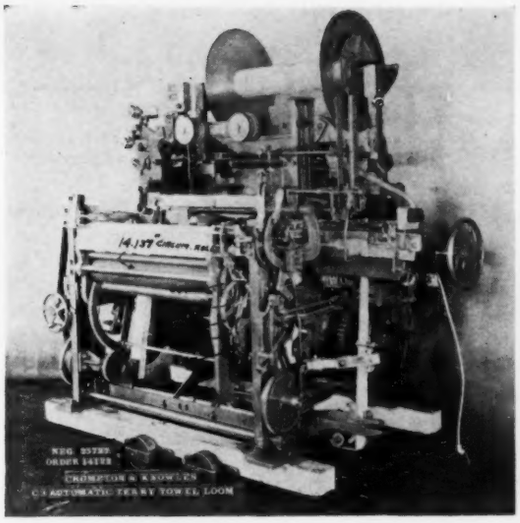


Fig. C-12. C & K automatic terry towel loom

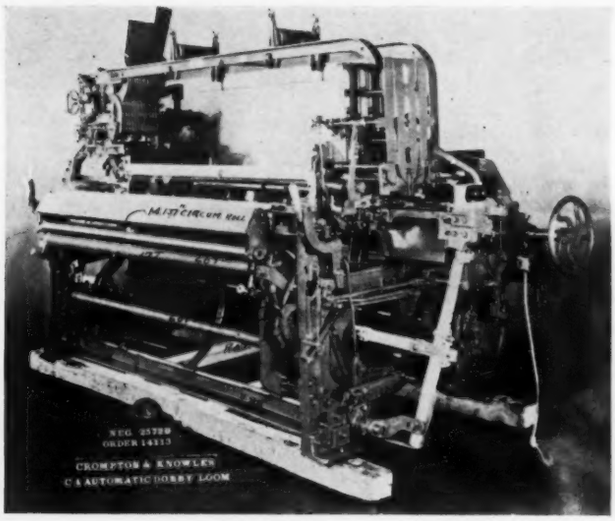


Fig. C-13. C & K C 4 automatic dobby loom

COTTON SECTION

CHAPTER II CONTINUED

by Ivar Moberg

Take-Up Calculations

THE COMBINATION of gears in a take-up motion determines the number of picks per inch. The number of picks per inch derived from a particular combination of gears can be calculated by using certain formulas, in which the value of the gears is used to give either picks per inch, change gear to use for a certain number of picks per inch, or the constant of the take-up motion.

These formulas give calculated pickage, while actual pickage in the cloth after it is taken off the loom may vary slightly from the calculated. This is due to the always-present slippage of cloth on the take-up roll. This slippage may be from 1 to 2%. Also, contraction of the cloth after it is taken off the loom and relieved from tension amounts to from 0 to 5%. Another thing which will vary actual pickage from that calculated is a thicker or thinner take-up-roll covering than that the loom builders originally used. For these reasons we should not tenaciously stick to a certain gear calculated to give the correct picks in the cloth, but should use a gear that will actually produce the results desired. In this case, a gear with less teeth than the calculated number would offset slippage and contraction.

If the number of picks produced in the cloth with a certain change gear—or ratchet, in the types of take-up motions where these are interchangeable—is known, the required change gear or ratchet will most easily be found by proportion. The rule applicable to this calculation is as follows:

(Picks wanted $\times$ Present change gear or ratchet) $\div$ (Present picks) = Required change gear or ratchet.

The following example illustrates how this formula is used: Assume that 60 picks are wanted and the present change gear or ratchet of 60-teeth—due to contraction and slippage—gives 62 picks in the cloth. Then:

$(60 \times 60) \div 62 = 58$-tooth change gear or ratchet to be used. This simple method of finding the correct number of teeth in the change gear, or ratchet, should be memorized by the loomfixer.*

Other formulas for take-up calculations are somewhat more complicated,

* Mr. L. S. Peterson, of Crompton & Knowles, suggests, "Any decrease or increase in the number of teeth in the ratchet or change gear in order to obtain the correct number of picks per inch would certainly be of very small value. Accordingly, it might be possible to . . . treat this in the light of a numerical difference only." For example, "if 50 picks per inch are desired in a certain fabric and if the application of a 50-tooth ratchet results in 53 picks in the cloth, then a ratchet of three fewer teeth should be tried.

"In other words, the fact that the amount of correction necessary is such a small percentage of the picks per inch, and the fact that we cannot deal in fractions of teeth, make it just as accurate, we believe, to use this method of differences as to calculate the result by proportion."

Fig. C-14. C & K C 4 automatic jacquard loom

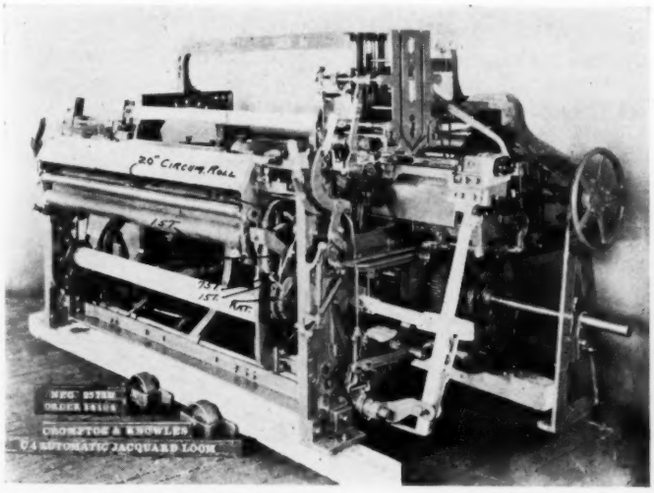
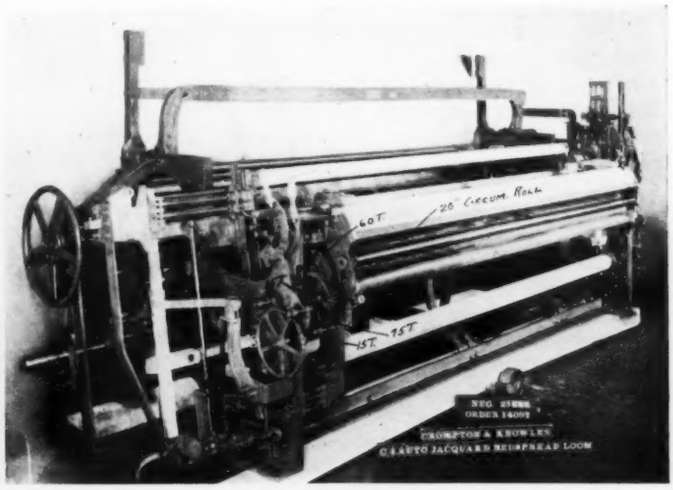


Fig. C-15. C & K C 4 automatic jacquard bedspread loom



but any loomfixer desiring to improve himself can easily learn them with a little study. It is only necessary to remember the rule that all driven gears multiplied together and divided by all driving gears multiplied together will give the calculated number of picks per inch in the cloth. The only difficulty in this calculation is to determine which of the gears are driven and which are driving. However, it should be remembered that in a ratchet take-up motion the ratchet is always considered a driven gear and every second gear thereafter is a driven gear, ignoring, of course, any carrier gear that will only transmit the motion from one gear to another. A carrier gear is a single gear which face-connects two other gears for the sole purpose of transmitting or reversing motion.

In a worm take-up motion, determination of which is a driven gear and which is a driving gear is somewhat more difficult. In this case the circumference of the take-up roll, and every second gear thereafter, is considered to be a driver.

Crompton & Knowles take-up motion is manufactured so that one revolution of the ratchet will move the circumference of the take-up roll 1 in. It is thus necessary only to select a ratchet which will give the required picks in this 1 in.

If, for instance, 60-picks per inch are wanted, a 60-tooth change gear would first be tried. It is obvious that since one revolution of the ratchet takes up 1 in. of cloth, and as there are 60 teeth in the ratchet, the loom will have to run 60 picks before the ratchet completes one revolution. Now, due to the slippage of the cloth on the take-up roll and the contraction of the cloth after it is relieved of tension, the actual pickage may be 62 picks per inch in the cloth off the loom. The picks should be counted on slackened cloth in the loom and the formula given above used to determine the number of teeth required in the ratchet to produce the desired picks in the cloth.

Fig. C-12 shows the take-up combination of a C & K automatic terry towel loom. C & K's formula for the constant of this take-up is as follows:

(1 Revolution of ratchet $\times$ 20-teeth $\times$ 17-teeth $\times$ 14.137 in. circumference of take-up roll) $\div$ (80-teeth $\times$ 60-teeth) = 1 in. movement of circumference of take-up roll.

This formula can be applied to any C & K loom having a 5-gear ratchet take-up by using the respective number of teeth in each instance. The formula would then be:

(1 Revolution of ratchet $\times$ Ratchet pinion $\times$ Intermediate-gear pinion $\times$ Circumference of take-up roll in inches) $\div$ (Intermediate gear $\times$ Take-up-roll gear) = Constant, in inches of cloth taken up.

On some looms the take-up of cloth is $\frac{1}{2}$ in. for each revolution of the ratchet where high pickage is concerned and 2 in. for each revolution of the ratchet where low pickage is the rule. It is obvious that in the first case a ratchet having one-half as many teeth as the picks wanted would be used, and in the second case a ratchet with twice as many teeth as picks required would be used—contingent on corrections for slippage and contraction.

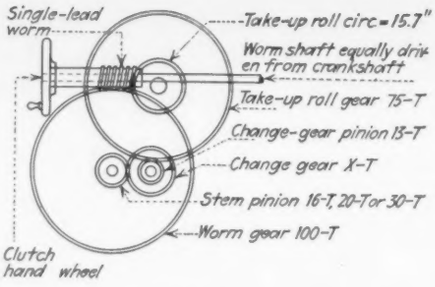


Fig. C-16. C & K low-roll worm take-up

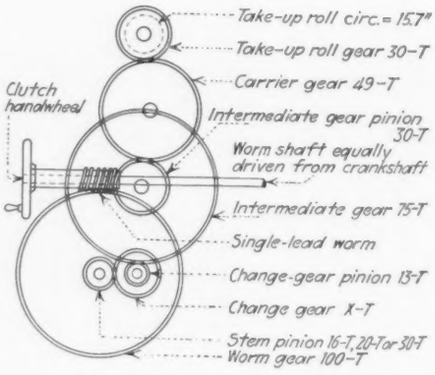


Fig. C-17. C & K high-roll take-up

Figs. C-13, C-14, and C-15 show various take up combinations of C & K looms and the gears most commonly used. The formula given in connection with Fig. C-12 is applicable to any of these take-up combinations by changing the figures to correspond to the actual number of teeth and circumference in each case.

The Draper ratchet take-up motion shown in Fig. C-5 (TEXTILE WORLD, October, 1937) is conveniently figured on a constant basis. The combination of this take-up is as follows: ratchet, 110-teeth; ratchet pinion, 14- or 28-teeth; change gear, X-teeth; change-gear pinion, 12-teeth; carrier gear, 85-teeth; take-up-roll gear, 42-teeth; take-up-roll circumference, $14\frac{1}{2}$ in. The formula for calculating the constant of this take-up, with an estimated slippage and contraction of 5%, is:

(Ratchet $\times$ Change gear $\times$ Take-up-roll gear) $\div$ (Ratchet pinion $\times$ Change-gear pinion $\times$ Circumference —5%) = Picks per tooth of change gear. An example, using a 14-tooth ratchet pinion, is as follows:

(110 $\times$ 1 $\times$ 42) $\div$ (14 $\times$ 12 $\times$ 14.5 $\times$ .95) = 2 picks per tooth of change gear. For calculation purposes the change gear is considered to have one tooth only; and 5% is subtracted from the circumference of the take-up-roll to allow for slippage and contraction of the cloth. The 85-tooth carrier gear is, of course, ignored in the calculation as it merely transmits motion from the change-gear pinion to the take-up-roll gear.

If a 28-tooth ratchet pinion was used in the above example, the speed of the take-up roll would be twice that obtained with a 14-tooth ratchet pinion and the constant would be one-half of the constant for 14-teeth, or one pick per tooth of the change gear, instead of two as above. To determine the change gear for any required pickage, once the constant is calculated, it is necessary only to divide the picks required by the constant, thus:

Picks required $\div$ Constant = Change gear. For example, if 60 picks are required and the constant of the take-up motion is 2, then:

60 $\div$ 2 = 30-tooth change gear. Likewise, to determine picks given by any change gear, multiply the take-up constant by the change gear, thus:

30 $\times$ 2 = 60 picks.

Take-up calculations for worm take-ups are somewhat different from those for ratchet take-ups, owing to the fact that there are three variable factors in the former against only two in the latter. The variables in a worm take-up are: worm lead, stem- or clutch-pinion-gear pinion, and change gear.

The worm lead may be 1, 2, 3 or 4, rarely more, and is indicated by the number of threads which the worm contains. A single-lead worm has one thread; a double-lead worm, two threads; etc. A single worm moves the worm gear one tooth; a double worm, two teeth, etc.; for each complete revolution. Hence, it is obvious that a double-lead worm will produce only half as many picks as a single-lead worm; a triple $\frac{1}{3}$ as many; a quadruple, $\frac{1}{4}$ as many.

The stem pinion on a C & K loom, and the clutch-pinion-gear pinion on a Draper loom, are variable to a certain extent. For instance, on a C & K loom this pinion may have as standard 16-teeth, 20-teeth, or 30-teeth; on a Draper loom it may have as standard 14-teeth, 28-teeth, or 56-teeth. Of course, special take-up combinations may have any number of teeth in the pinion, within certain limits.

Figs. C-16 and C-17 show C & K low- and high-roll take-up combinations, respectively. The calculation of these two take-up combinations is exactly the same, since the two uppermost gears in the high-roll take-up do not enter into the calculation. The reason for this is that the 49-tooth gear is merely a carrier and the 30-tooth top gear has the same number of teeth as the intermediate-gear pinion.

The conclusion of Mr. Moberg's discussion of take-up calculations will appear in an early issue—Editor.

Motors and Maintenance

receive attention at

Master Mechanics' Greenville Meeting

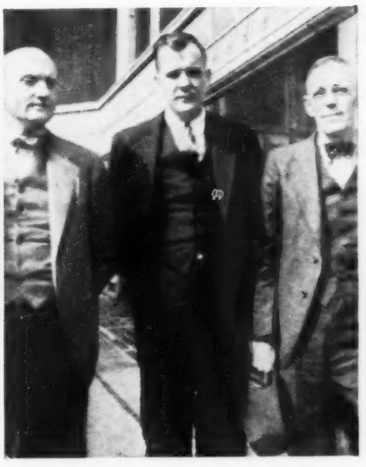
MOTORS AND general shop problems were discussed at the fall meeting of the Master Mechanics Division of the Southern Textile Association, held Nov. 9, in Greenville, S. C. P. D. Hatley, of Newberry, S. C., chairman of the division, presided.

Electric motors should be operated at 75 to 90% of rated capacity, asserted Chairman Hatley, opening the discussion. L. M. Kincaid, master mechanic of Kendall Co., Paw Creek, N. C., prefers 95 to 100% capacity operation from the standpoint of current consumption, pointing out that the average life of an electric motor is only 15 to 20 years regardless of operation. Fred C. Alexander, General Electric Co., Greenville, S. C., explained that there is a loss in power factor when a motor is operated below 90% of its rating. With a room temperature of 30 to 35° C., he thinks that the average motor can be operated safely at 100% of the rated capacity. At 75% capacity there is a loss of 5% in power factor. Van W. Kay, master mechanic, Judson Mills, Greenville, stated that he thinks 90% is a good rate for motors on group drive for looms.

Van W. Kay elected chairman of division (at right)

P. D. Hatley retiring chairman of division

Representative of those in attendance were, left to right, R. S. Vaughn, Greenville, S. C., F. D. Summey, Enoree, S. C., and Mr. Sutherland



Cleaning and Oiling

Lint should be blown out of motors as often as necessary to insure efficient operation, according to H. H. Iler, plant engineer, Union Bleachery, Greenville. Motor capacity is dependent to a great extent on the ability of the motor to radiate heat, he pointed out, adding that he has a special man who does nothing but clean and oil motors. Mr. Thompson agreed that motors should be cleaned as often as necessary, but in his mill there is a man in each department who does the cleaning and oiling, due to the large number of motors in use. He blows-off with a large-volume, low-pressure air cleaner. F. D. Summey, master mechanic, Riverdale Mills, Enoree, S. C., said that his cleaning schedule calls for motors in the carding and spinning rooms to be blown off at least twice a week. Once a year he gives all individual drives a thorough cleaning. Mr. Kincaid asked if a high-pressure blower with a small orifice would not blow off insulation, and a member replied that such a blower would drive particles of trash into the coils and eventually cause them to go bad.

Mr. Iler remarked that he has had trouble with external-resistance motors equipped with a contactor. He eliminated the trouble by putting on a compensator, only to have this device cause a dead spot in the motor. There seems to be no cure for the dead spot, other than to pull on the belt and move the rotor when the motor stops on the spot. Mr. Groves suggested that there is a method of rewinding rotors and welding them which will eliminate dead spots.

Single-phase operation is responsible for 75% of motor burn-outs, declared R. S. Vaughn, Southern Electrical Supply Co., Greenville, citing records he kept over a period of years on motors brought to his firm for repairs. Causes of single-phasing include worn contacts, bad switches, improper fuses, etc.

Cutting coils out of motors reduces efficiency, reported T. H. Taylor, electrician, Southern Bleachery & Print Works, Inc., Taylors, S. C.; but does not mean that the motor has to be stopped. He mentioned one instance of operating a motor five years on a 75% load with three coils out, but does not recommend the practice. Cutting coils unbalances a motor and causes excessive heat. Mr. Vaughn added that cutting a coil some times helps a motor if the voltage is unbalanced, but more than likely it will set up cross-currents of electricity, which cause heat and increased power consumption. If coils have to be cut in an emergency, they should not be removed from the motor, as adjacent coils are inevitably damaged during the operation. Marshall Lake, Duke Power Co., Charlotte, N. C., agreed with Mr. Vaughn and said further that an unbalanced field may raise the density of the metals in the motor and cause hot spots. A motor with cut coils should be rewound as soon as possible.

When machinery is speeded up to increase production, the power consumption goes up with the square of the speed, said Mr. Alexander in answer to a question. A member confirmed this with a report to the effect that in his mill amperage on loom motors increased from 0.62 to 0.84 when loom speed was increased from 160 to 180 picks.

Unanimous opinion was that the use of micrometers in the mill shop pays a big return on the investment. Mr. Iler told of an experience wherein a clutch pulley costing $120 was ruined during bushing for lack of a micrometer. A set of micrometers would have cost less. As a result of this incident, the shop secured a set of micrometers and subsequently there has not been a pulley cracked during bushing. Several members reported difficulty in getting older mechanics to give up the use of calipers in favor of micrometers.

Purchase of high-speed drills for use in the mill shop is justified, it was agreed. Mr. Thompson suggested that it is advisable to buy taper-length drills smaller than ¼ in. to reduce breakage.

No shop method of preventing oil from dripping out of overhead bearings was offered, but it was suggested that there is a commercial device on the market made of glass which screws under the bearing and catches the oil as it runs out. A wiper arrangement is included.

Picker and condenser screens are usually soldered during repair, although one member reported that he welds a thin metal tie (from the cloth room) to the screen with an oxy-acetylene welder.

Several members asserted that it is economical to make screws, studs, etc., in the mill shop from old shafting and scrap.

Van W. Kay was elected chairman of the division for the ensuing year.

Wm. G. Leininger Knitting Co. solves difficult problem involving disposal of

Dyehouse Waste

By Edward P. Schinman
Chemical engineer, Permutit Co.
and
Claude I. Ruth
Vice-president and dyer, Wm. G. Leininger Knitting Co.

DISPOSAL OF textile waste liquors, particularly those from the dyehouse, is in most cases a difficult problem. Today, more than ever, mill owners and operators are confronted with the seriousness of this problem, because of the more stringent requirements of the various State Boards of Health regarding the quality of the waste discharged into rivers and creeks.

With the concentration of population in the neighborhood of textile mills, it becomes increasingly important to maintain the public waterways in a sanitary condition. Dye wastes not only discolor a small stream and its banks, but, by consuming the oxygen, kill fish which may be present and also plant life and may promote the growth of bacteria.

At the William G. Leininger Knitting Co. plant, in Mohnton, Pa., the creeks into which the dye wastes were disposed were relatively small; consequently, when large quantities of sulphur black, direct blue, and various other colors, together with boil-off solutions, were introduced into the stream in quantities of 5,000 to 6,000 gal. per hour, the quality and appearance of the creek water was appreciably affected. In order to reduce the unit contamination to a minimum the practice was to discharge the dye wastes into a concrete accumulating tank; from this concrete tank the waste flowed by gravity to another storage tank and from there to the creek some 600 ft. away.

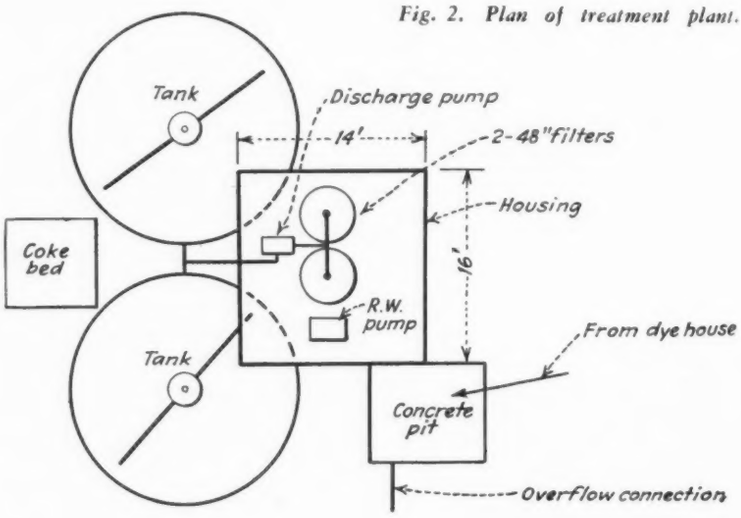
The plant management and the State Board of Health came to the conclusion that some form of treatment should be found to prevent the severe pollution of this stream. In order to analyze the problem, representative samples of the waste solutions were collected over a considerable period of time. Samples were also taken of the various rinses independently, as well as average samples under normal conditions of operation. The purpose of collecting the several series of samples was to determine whether or not the particular parts of the waste would react to the treatment that would be finally selected and also whether or not the average sample or mixture could be satisfactorily treated. Furthermore, the results of tests on these samples would determine whether the treatment would be of the continuous or intermittent batch type and would influence the type of plant equipment to be installed.

Preliminary Tests

The senior author supervised extensive coagulation and treatment tests with the commercially available coagulants, including those commonly used in filter practice. Lime, copperas, chlorinated copperas, ferric chloride, magnesium sulphate, aluminum sulphate, calcium chloride, clay, chlorine, and sulphuric acid were tried in various combinations in order to determine optimum results and most rapid floculation.

Several interesting results were noticed during a laboratory-scale test.

Fig. 2. Plan of treatment plant.



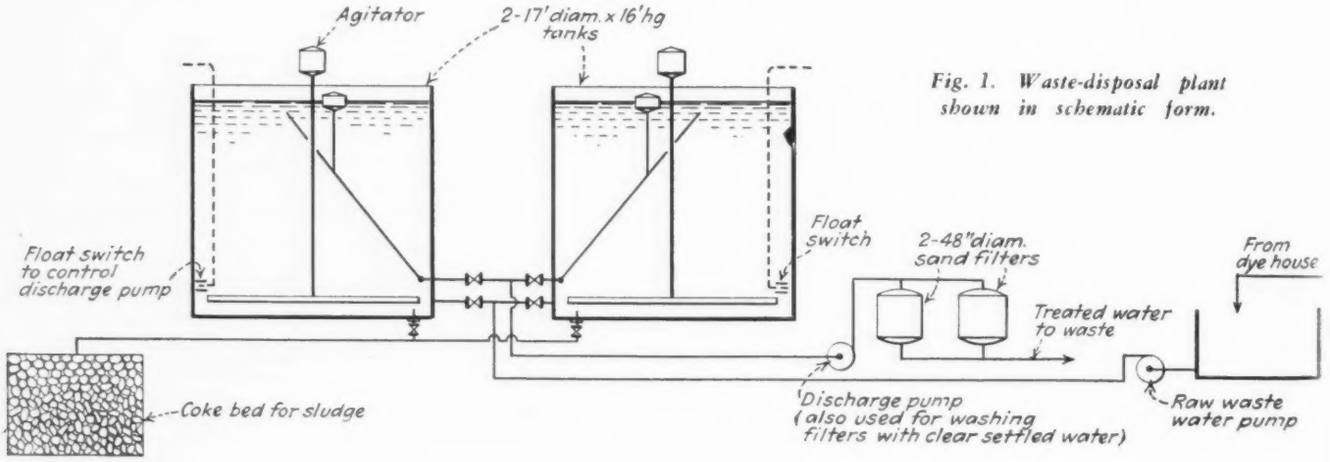

Agitator
2-17' diam. x 16' hg tanks
Float switch to control discharge pump
Float switch
2-48"diam. sand filters
From dye house
Treated water to waste
Coke bed for sludge
Discharge pump (also used for washing filters with clear settled water)
Raw waste water pump

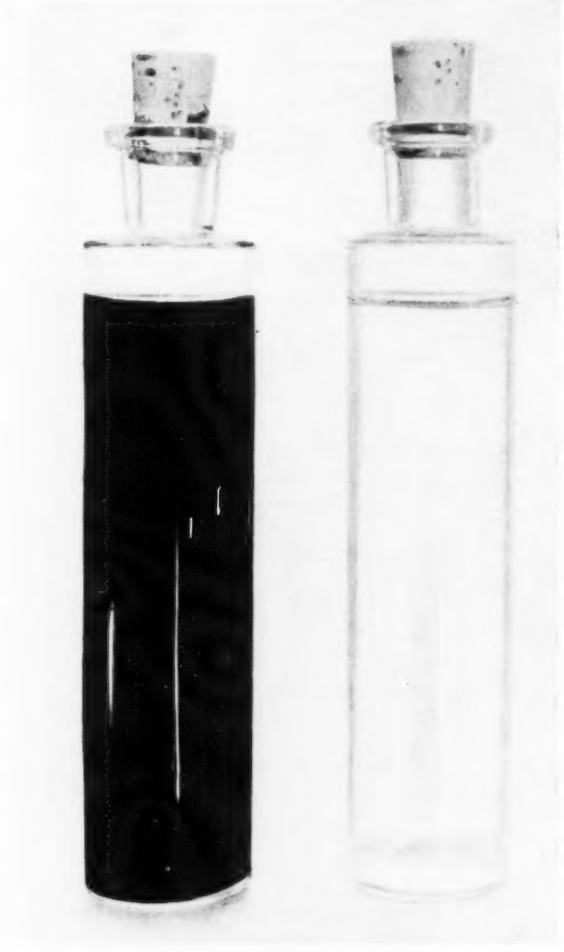
Fig. 1. Waste-disposal plant shown in schematic form.

Some combinations of chemicals would give satisfactory results at room temperature; but at the higher temperature of the waste water in the field the results produced by these same chemicals were not so satisfactory and *vice versa*. Several different treatments were shown to be satisfactory, and it was a question of determining which would prove most economical.

Because of the extremely wide variations in the quality of effluent from the various dyebaths, ranging from a pink liquid to the black solutions of sulphur dyeing formulas, it was necessary to use the batch treatment, in which the dye waste solutions are stored in a tank for several hours and then treated in the form of the average composition or mixture.

Samples of the proposed plant effluent were submitted to the Department of Health for its approval. On the basis of the treatment determined experimentally in the laboratory, the large-scale plant was designed. The cost of treatment varied from 5 to 8c. per 1,000 gal., depending upon the initial color and organic content in the influent and the allowable tolerance in the effluent. The treatment which was finally used to give most efficient color removal consists of 10 to 12 lb. of lime plus 2 to 3 lb. of ferrous sulphate to 1,000 gal. of waste liquor. An alternate treatment which was satisfactory in regard to speed of reaction and floculation of precipitates consisted of 12 lb. of commercial sulphuric acid plus 2 lb. of alum to 1,000 gal. This latter chemical treatment, however, was not so efficient for color removal. As the character of the waste varies, small-scale "jar" coagulation tests are made from time to time, so as to determine optimum dosages and selection of the proper reagents for most efficient results.

Fig. 3. Sample of waste liquors before and after treatment.



Treatment Plant

The intermittent treatment plant is shown in schematic form in Fig. 1. Fig. 2 shows a simple plan of the treatment plant. As it will be noted from Fig. 1, the equipment consists of the following:

- 2 Treatment tanks 16 ft. high and 17 ft. in diameter; capacity of each tank is approximately 25,000 gal.
- 2 Permutit mechanical agitators complete with electric motor drive, reduction gearing motor starter, paddles, and shafting.
- 1 Waste water pump for taking the dyehouse effluent to the treatment tanks.
- 2 Swing draw-off pipes for taking the settled water from the tanks.
- 1 Discharge pump to take the treated effluent through sand filters to the creek.
- 2 48-in. diameter Permutit sand filters with non-clogging under-drain system; these pressure filters are arranged for series or parallel filtration.
- 1 Coke bed on which the sludge can be disposed.

The cycle of operation of the plant is as follows: The waste liquor from the dyehouse flows by gravity to the concrete accumulation pit, from which it is pumped into one of the treating tanks. As soon as the treating tank is full, filling of the other treating tank starts. The first, or full tank, is treated by adding the necessary chemicals and starting the agitator. The agitator runs for approximately 1 hr., or until the chemicals and the waste solution are intimately mixed. The purification and precipitating reaction is allowed to go to completion, and the precipitates formed are permitted to settle for approximately 3 hr. After this period of sedimentation, the discharge pump is started and the clear settled waste water is pumped through the sand filter to waste. When the level in the tanks has dropped to approximately the sludge line, the float switch automatically shuts off the discharge pump.

The sludge can then be removed or can be allowed to accumulate for one, two, or three times, as experience proves best for the operation of the treatment plant.

During the time the chemical treatment, sedimentation, etc., are being carried on for Tank 1, Tank 2 is filling and subsequently goes through the same cycle of operation as Tank 1.

Swing draw-off pipes are used in the sedimentation tanks, so that as the tanks are discharged only the clear settled water is removed. This also affords additional sedimentation time, since the treated water is removed at a relatively slow rate without disturbing the accumulated sludge.

Sand Filtration Essential

Sand filters are used for filtering the settled water, because it is desirable to obtain the most efficient results and so that the plant effluent will have as high a quality as possible. The possibility of filtering the entire content of the tanks through the coke bed was considered; but if the entire waste water, including the sludge from the treatment were passed through the coke bed, the succeeding clear settled water of the following batches would pick up color and organic matter from the coke bed. Therefore sand filtration is an essential part of the plant and treatment for the dye house waste.

The sludge which is removed from the settling tank by gravity and by means of the special agitation flows to the coke bed, where it is allowed to dry. When the sludge has accumulated to such an extent that it is no longer possible to drain the excess sludge from the coke, the entire coke bed, together with the sludge, is removed and used for fuel. The plant equipment—including pumps, electrical controls, agitating equipment, and sand filters—were furnished by the Permutit Co., New York.

Results Obtained

The plant has more than met the expectations of its designers. Sulphur black dye waste, direct blue waste, and other colors go into the treatment tank; and the effluent is as colorless as the average drinking-water supply. Fig. 3 shows samples of the waste before and after treatment. This picture speaks more than words for the operation of the plant. The treatment has converted the troublesome dye waste into an effluent which can be safely discharged without polluting the streams.

C & K Loom Census

Classification of looms by age, location, and type shows need for weave-room modernization

FEWER THAN 20% of the 193,399 Crompton & Knowles box looms installed in United States textile mills are less than ten years old and 25% are 25 or more years old, according to the recently released "C & K Box Loom Census." In contrast, the fact that, as stated in the report, only 35,586 looms (those less than ten years old) can be classed as modern from the economic standpoint stands out boldly. Charts 1, 2, and 3, taken from the report, indicate the percentages of automatic and non-automatic looms, by various age groups, in each of the three main weaving divisions.

Cotton—More than 50% of the 78,205 C & K cotton looms covered by the report are concentrated in two states, namely, Massachusetts and North Carolina, each of which has over 20,000 such looms installed. Next in line comes New Hampshire, Rhode Island, South Carolina, and Virginia, each of which has between 5,000 and 10,000 cotton looms. These six States comprise 85% of all C & K cotton-type box looms.

About 44% of all cotton looms covered by the report are automatics. Classified according to type, gingham and dress goods looms make up 60.94% of the total automatic cotton looms; terry towel looms, 20.88%; and the balance is composed of various other types. In the non-automatic class, 52.42% are Providence cotton looms; 33.11%, gingham and dress goods looms; the balance is comprised of a number of less extensively used types.

Silk and Rayon—Approximately 60% of the 73,075 C & K silk and rayon looms are located in Pennsylvania and New Jersey, the former having over 20,000 and the latter between 10,000 and 20,000 looms of these types installed. Massachusetts, Rhode Island, and North Carolina account for 23%; 17% are scattered over thirteen states.

Generally speaking, looms used by the silk and rayon weaving mills are newer than those used in cotton, woolen, and worsted mills. Automatics account for approximately 18% of the total silk and rayon looms installed. Classified according to type, automatic silk and rayon looms are 61.08% S-3 type, 20.47% Knowles Gem silk, the remainder including S-4, Knowles intermediate silk, Knowles dobby silk, and S-2 looms, in the order listed. In the non-automatic group, a number of types are represented, leaders in point of numbers being the Knowles dobby silk loom, which comprises 60.32% of the total; Knowles Gem silk looms, 19.07%; and Providence silk looms, 10.84%.

Woolen and Worsted—According to the C & K Census, looms in this branch of the industry are concentrated in the Northeast. Approximately 63% are located in New England, 25% in New York, Pennsylvania, and New Jersey; 12% are scattered through nineteen states.

More than 80% of the woolen and worsted looms are at least 10 years old and 50% were manufactured 25 or more years ago. Classified by type, automatics, which comprise 36% of all woolen and worsted looms, are divided as follows: intermediate worsted, 23.37%; heavy worsted, 21.18%; woolen, 17.00%; W-2 worsted 12.20%; with the remaining percentage divided among seven less extensively used types.

The non-automatic group is composed of 39.92% heavy and general worsted, 25.81% woolen, 22.01% intermediate worsted, the balance being divided among a number of other types.

Included in the report are several loom modernization charts, showing how progressive mills keep weaving equipment up-to-date, and specimen census report sheets, indicating additional data available to C & K customers but not included in the report.

Under the heading "Conclusions" C & K states, "Until the early 1920's weaving equipment was sold mainly for the purpose of increasing the output of existing fabrics . . . Since 1925 virtually no weaving equipment has been sold for expansion . . . the machinery has been adopted either for the purpose of reducing costs or for the manufacture of new fabrics."

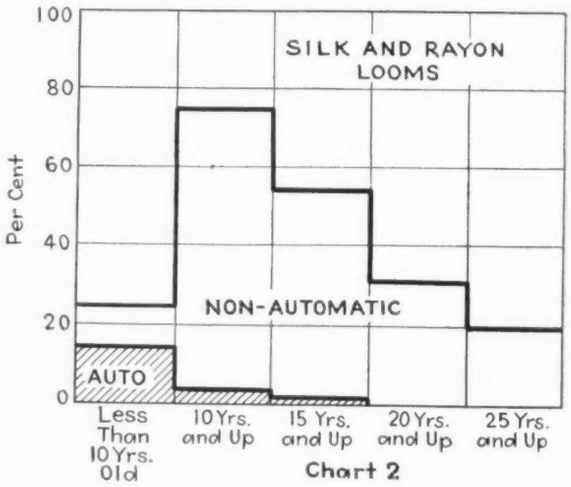


Chart 2

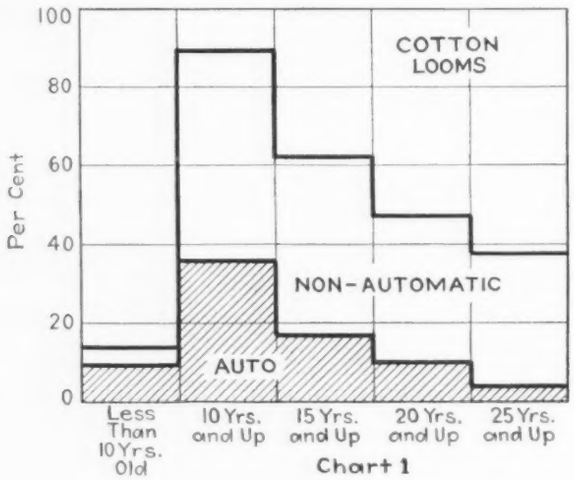


Chart 1

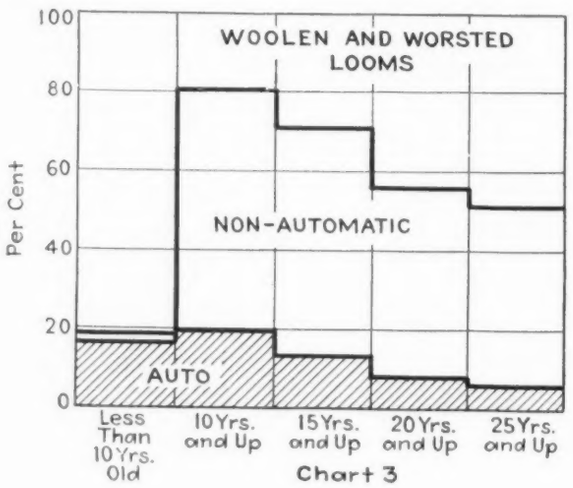


Chart 3

If your yarn is used in loop form, here is the way to determine its

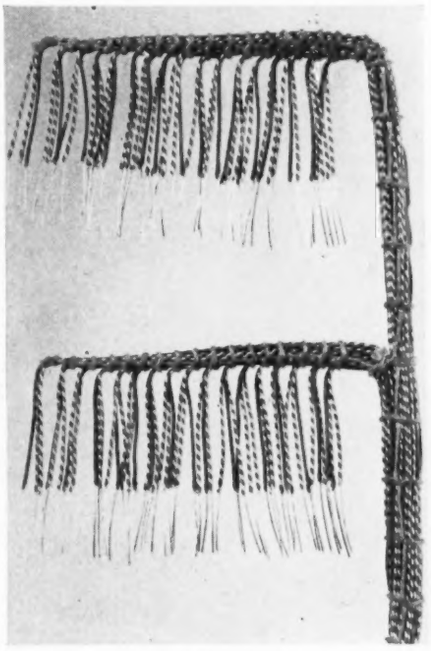
Loop Strength

By A. C. Clifford
Engineer, Western Electric Co., Kearney, N. J.

Although Mr. Clifford confines himself to the specific problem faced by his company, the method of testing which he describes has interesting possibilities along other lines. Where yarn, thread, or twine is subjected to a cutting action upon itself, the loop-strength method of testing approaches much nearer the condition of use than the standard tensile-strength test. Lacing, chain stitching, and bundle tying are obvious cases where the method is applicable; and there is a large field in knitting yarns, since the knitted fabric is essentially nothing but a series of loops pulling against one another.

IN the manufacture and installation of telephone switchboards produced by Western Electric Co., the terminating wires are bound together in their respective groups to prevent tangles and kinks and to facilitate work on the apparatus. A heavy, waxed thread is applied in a series of continuous half hitches spaced at intervals along the entire length of the group of wires, binding them together firmly so that the bundled wires are self-supporting. In this lacing operation, considerable strain is placed on the thread in pulling it tight. The thread, therefore, must be sufficiently strong to withstand the severe strain of application.

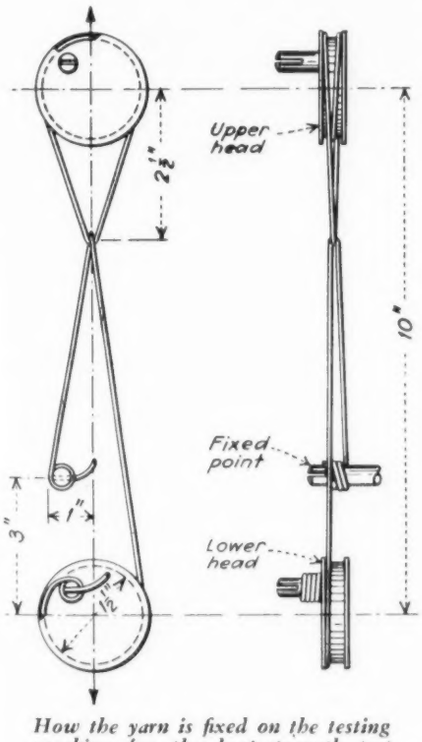
In order to insure the purchase and acceptance of material having satisfactory operating characteristics, a minimum tensile-strength requirement was specified originally, with test methods conforming in general to the procedure of the American Society for Testing Materials, Standard D-180. Experience proved subsequently that the tensile-strength test was not entirely satisfactory, as material was received occasionally which met the tensile-strength requirement and yet broke in lacing. An investigation showed that the breakage occurred almost invariably at the point where the thread crosses on itself to form the half hitch, and that the failures were due to an abrading or cutting action in pulling the thread tightly around



Waxed linen thread used to lace switchboard wires

the bundle of wires. It seemed, therefore, that a test more closely simulating the actual condition of use might be preferable to the conventional tensile-strength test. As a result, the Western Electric Co. developed what it terms the "loop-strength" test.

The testing machine which is used is an automatic power tester, inclination-balance type, in which the usual upper and lower grips for the tensile-strength test are replaced by the upper and lower flanged spools shown in the accompanying sketch. The latter are carried on arms of such length that the spools can be adjusted readily to 10 in. between centers. The fixed point is mounted on a removable bracket attached directly to the frame of the testing machine.



How the yarn is fixed on the testing machine for the loop-strength test

In preparing the thread for the test, a sample approximately 18 in. long is cut from the test package. The ends are tied together and the thread is placed on the upper spool so that there are 1½ turns around the spool, the balance forming a V loop below the spool (see sketch). Another length of about 40 in. is cut from the test package. The latter constitutes the test specimen. One end is attached to the pin of the fixed point; the other end is passed through the V loop on the upper spool, down around the lower spool, and made fast on the pin of the lower spool.

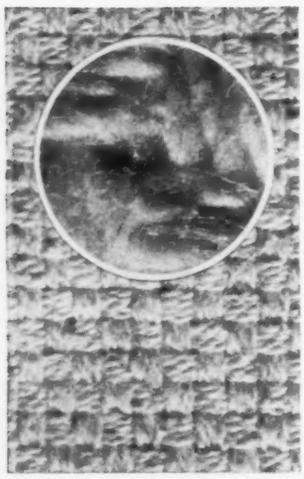
The load is applied to the lower spool, which moves at a speed of 12 in. per minute. The test specimen attached to the fixed pin and lower spool breaks ultimately at the point of contact with the V loop on the upper spool. If for any reason the V loop should break, the test result is disregarded.

While the relation between loop and tensile strength varies with the construction of the thread and the fiber from which it is made, the loop strength has been found always to be less than the tensile strength. Therefore, the loop strength is the critical characteristic, and the tensile-strength test has been eliminated entirely in determining the quality of material which is to be used for lacing purposes. Western Electric Co. has used the loop test exclusively for this purpose for some time with satisfactory results, both to itself and to suppliers of the thread.

Staple Cotton Fabrics

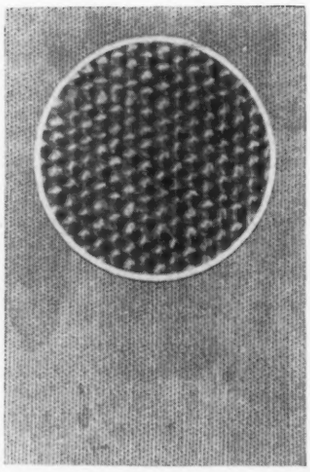
By John Hoye

Fabric Technician with
W. Harris Thurston
New York



Monk's Cloth—50″, 24x24, 20 oz. per yd., 4 by 4 basket weave; cotton and jute mixed

This twenty-fourth instalment of Mr. Hoye's series of articles on staple cotton fabrics—which began in the January, 1936, issue—concerns monk's cloth and warp rep.



Warp Rep with mercerized and embossed moiré finish—36″ width (gray—39″, 44x86, 3.60 yd., three-ply warp and two-ply filling)

Monk's Cloth

MONK'S cloth is a trade name for one of the oldest homespun type fabrics. It is also known as Druid's Cloth, Abbot's Cloth, Belfry Cloth, Bishop's Cloth, Mission Cloth and Friar's Cloth. Many of these names also are registered trade names. The fabric is heavy, coarse, mottled or brownish white color, and is woven in a basket weave which gives a more or less loose texture to the cloth. A 2-and-2 basket weave (two warp yarns interlaced with two filling yarns to form a basket weave), or a 4-and-4 combination is used. These two staple cloths are referred to in the trade as "2 by 2" and "4 by 4". The terms "2-thread" and "4-thread" are also used. All these terms, however, refer only to the basket weave used and have no relation to the ply of the yarns. The fabric is made in various weights from 12 to 20 oz. for 50 in. width, and from 10 to 12 oz. for 36 in. The count or construction is usually about square. Other basket weaves counting "6 by 6" and "8 by 8" are occasionally used. Such fabrics are coarser than the first named types, and, as a rule, looser in texture, having more "give" to them.

The characteristic brown cast of this cloth, sometimes referred to as "oatmeal color," is obtained by use of:

(a) Cotton mixed with low grades of jute or flax, which gives an uneven tan or brown coloring, as well as a wiry or hairy hand to the cloth.

(b) Ply yarns, a gray (unbleached) yarn plied with a brown colored yarn, producing a mottled effect.

(c) Mock twist yarn—brown-colored roving, and gray (unbleached) roving spun into a single yarn—which also gives a "mottled" effect.

(d) Tinted cotton mixed with ordinary unbleached cotton which produces in spinning a brownish white color-blend yarn.

These yarns are used as follows:

(a) Ply yarns in the warp and filling

(b) Ply yarns in the warp—single filling of mock twist.

(c) All single yarns (mock twist).

The all-cotton cloths are usually of much softer texture than those in which jute or linen is mixed.

Novelty effects are sometimes used, produced by means of colored yarn in plaids and the like. Monk's cloth is sometimes piece-dyed in suitable drapery colors. Occasionally a honeycomb weave or waffle effect is used instead of a basket weave. In this case, however, the cloth is woven on a dobby loom and should not be classed as a monk's cloth or homespun type of fabric.

The widths are usually 50 in. or wider, but the fabric is also made in 36 in. Essentially a drapery cloth, the fabric is now largely used as a "silence" cloth in broadcasting studios and on the stage.

Yarns: Usually soft-spun.

Single 3s to 5s
Ply 7/2 to 10/2

Uses: Draperies, bedspreads, covering or lining for walls, bulletin boards, screens, sound-proofing, etc.

Examples of monk's cloth:

50 in.	28x28—16 oz.	(4 by 4)	Ply warp, single filling
50 in.	28x22—14 oz.	(2 by 2)	Ply warp, single filling
50 in.	30x30—16 oz.	(2 by 2)	Ply warp and filling
50 in.	40x38—16 oz.	(4 by 4)	Ply warp and filling
50 in.	40x32—14 oz.	(2 by 2)	Ply warp and filling
50 in.	24x24—20 oz.	(4 by 4)	Ply warp and filling

Warp Rep or Moreen

WARP Rep or Moreen is usually made on contract. It is similar in weight to poplin, but the rib runs with the warp, or lengthwise, instead of with the filling across the cloth as in poplin. The rib is formed by use of a low number of ply warp ends and a higher number of ply or single filling picks per inch. The weave is plain and the yarns are usually carded. It is made for two purposes—medium weight for embossed effects, and in heavier weights for men's summer suitings.

After dyeing, the medium-weight qualities are given embossed moiré effects, formed by passing the cloth under suitably engraved calender rollers. Heat and pressure are applied to transfer the impression of the engraved moiré design on the roller to the cloth. Moiré effects show to their best advantage on ribbed fabrics (such as the warp rep), because those parts of the ribs which are flattened in the operation of embossing contrast with the other parts of the ribs, which are not flattened, by difference in reflection of light.

The heavier warp reps are made with ply yarns in both warp and filling, and, when converted, are used for men's summer suitings, etc. In the plying of the 3-ply warp yarns for this type rep a 2-ply yarn is twisted with a third yarn. Therefore the resulting 3-ply yarn is different from a 3-ply yarn twisted in the regular way.

Yarns: Usually carded. *Warp yarns:* 16/3 to 24/3; *Filling yarns:* 16/2 to 24/2; 30s to 40s single.

Finishes: Mercerized and embossed moiré. Mercerized and chased (suitings); also Sanforized shrunk.

Examples of warp reps:

39 in.	50x100	3.60 yd.	Three-ply warp, single filling (used for moiré embossing).
39 in.	44x86	3.60 yd.	Three-ply warp, two-ply filling (used for moiré embossing).
38 in.	26x58	2.00 yd.	Three-ply warp, two-ply filling (used for men's suitings).

-H-O-M-A-G-E- to American Styles

at the third "Fashion Futures" in New York

THE GROWING importance of the American fashion industry was impressively demonstrated at the third annual Fashion Futures of the Fashion Group, presented Nov. 22 at the Waldorf-Astoria Hotel, New York. This event, which has already become a classic in textile fashion showmanship, was offered in an "American Edition," and it constituted the most direct recognition yet accorded this country as a creative force in fashion. The occasion brought together an audience totalling some 1,500 of the foremost figures in all divisions of textile fabric and apparel styling, as well as many manufacturers and merchants.

With "America" as its keynote word, the presentation took on a nationalistic flavor which heightened its dramatic effectiveness. As usual, all divisions were represented, with interest centering on the garments made of silk, rayon, cotton, wool, velvet, etc.

The event focussed on U. S. fashions for resort wear, but it also offered a broad picture of the leading all-occasion style trends expected to develop through 1938. The production comprised 13 scenes and a parade of "American Fashions for the American Scene." More than 100 models participated, displaying the latest fashions in fabrics, garments, accessories, cosmetics, flowers, etc. Garments displayed covered the full gamut of the modern woman's usage, from the most casual types of sport wear to the last word in formal evening gowns.

The 13 scenes which made up the pageant were: (1) Winter Hookey: in 3 parts, (a) Gangplank to the Sun;

1.

2.

3.

Gray chiffon evening gown and sage green satin cape. On the right of the bodice is poised a corsage of roses and lilacs. The slippers match the gown in shade. The cape is both luminous and voluminous.

This distinctive evening gown is made of sheer crepe printed in a richly complicated floral pattern. With the gown was worn a cape made of ostrich plumes falling into separate feathery draperies as the wearer walked.

1.
MRS. ETHEL M. KREMER
Executive director, The Fashion Group

2.
MRS. WINIFRED J. OVITTE
President of The Fashion Group, fashion editor, "Women's Wear Daily"

3.
MISS DOROTHY SHAVER
Chairman of the board of The Fashion Group and first vice-president, Lord & Taylor.

(b) Shore Leave; and (c) Palm Beach Moon; (2) The Pampered Wife; (3) $300,000,000 for Beauty, featuring cosmetics; (4) Spotlights on Sports; (5) America Makes to Order, featuring custom-made clothes; (6) America's "Match" Girl, featuring accessories; (7) America on Wings and Wheels, featuring travel clothes; (8) America's 10 best—featuring fashion personalities; (9) California Works at Play; (10) Spring Comes Out of a Hat Box, featuring millinery; (11) They're Off in Suits; (12) Hollywood Gives Us the Terribly Super; (13) America Dresses the Millions.

A dramatic black and white beach robe in printed cotton. The clogs have the new three-inch cork soles with fabric tops and laced closings.

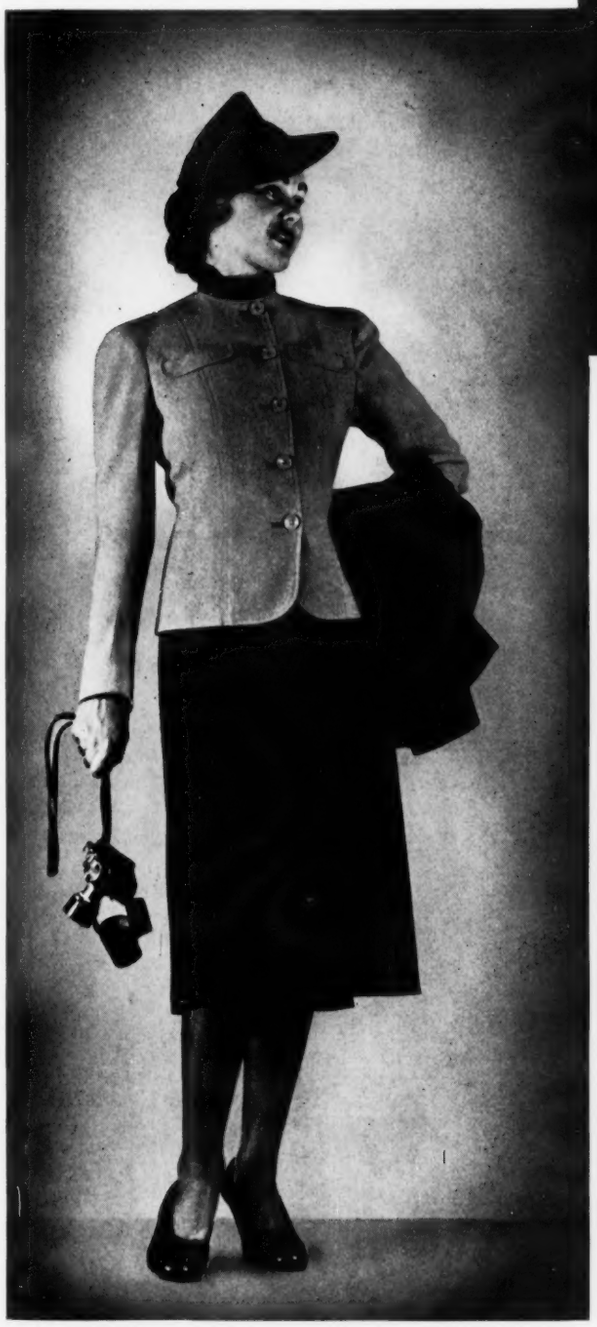
Bayadere striped printed cotton in a play suit. The skirt is accordion pleated; Buttons on, full length wrap-around style. There is an amusing jacket with short sleeves, and, underneath, a jersey-lined bathing suit in the same material as skirt and jacket. Sombrero and cork-soled clogs with fabric tops and cord ties complete the ensemble.

Daytime wear was represented by a wide variety of smart new models using a broad range of fabrics; the below shows a crepe afternoon dress with suede accessories.

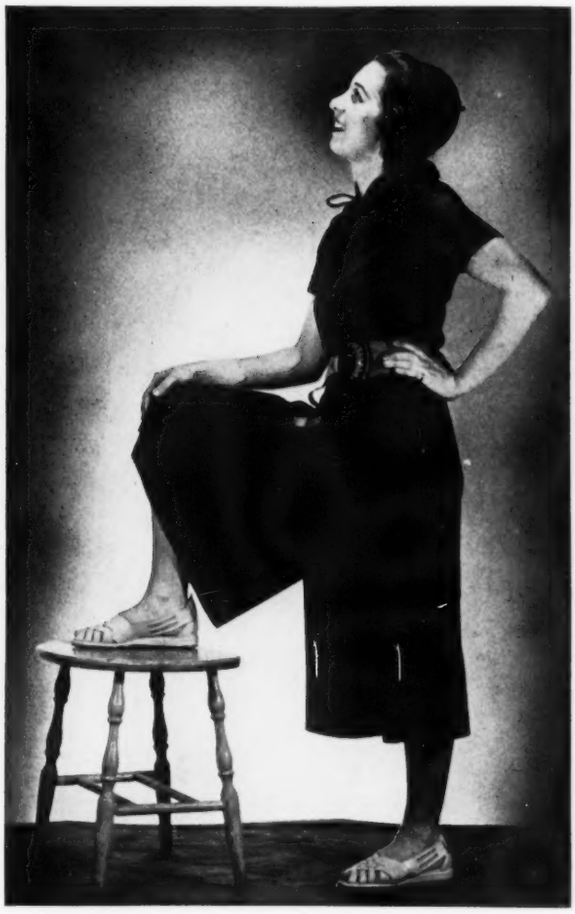
Evening gowns were a highlight of the event. One of the glamorous models was this white tulle and silver sequin gown with fitted bodice and a voluminous skirt starting below the hip line. The peacock is suggested in the sequin motif.

The magnitude of the event is manifest in the fact that it was arranged by 13 committees, totalling 168 persons. The work of this personnel was coordinated by a directing committee comprising Miss Estelle Hamburger, vice-president, Jay Thorpe, Inc., New York; Miss Eleanor Le Maire, interior architect; Mrs. Winifred J. Ovitte, fashion editor, *Women's Wear Daily*, president of the Fashion Group; Mrs. Sara Pennoyer, advertising director, Bonwit Teller; Miss Dorothy Shaver, vice-president, Lord & Taylor, New York, and Mrs. Ethel M. Kremer, executive director, Fashion Group.

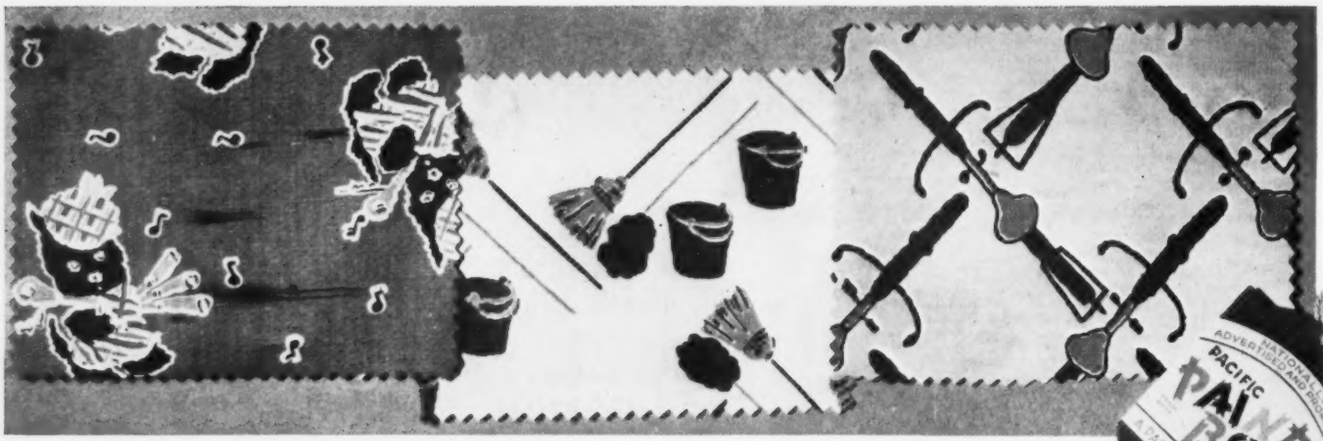
Another interesting group of play clothes from the "Sports Deck" scene. From right to left, powder blue suede, three-piece ensemble, including shorts, halter neck top with fitted bodice and short sleeved jacket; navy blue with white pin stripe shorts and jacket, and a white jersey tuck-in blouse; and a new knee length skirt in powder blue, nubbed crepe linen, worn over red shorts and a matching tuck-in shirt.



This woolen suit for cruise wear comprises green skirt and jacket and beige underjacket with breast pockets.



Suede culotte suit with American Indian belt and laced front. Color is rusty brown. Cap matches culottes.



"Great Scott," designed by Victor McKernan, 13 years old, of Phoenixville, Pa.

"All Work—No Play," designed by Emma Darvoe, 13 years old, of Barneveld, N. Y.

"Bikes," designed by Ruth Orkin, 15 years old, of Eagle Rock, Cal.

"Paint Box Prints"

Children's design contest aids sales. Pacific finds

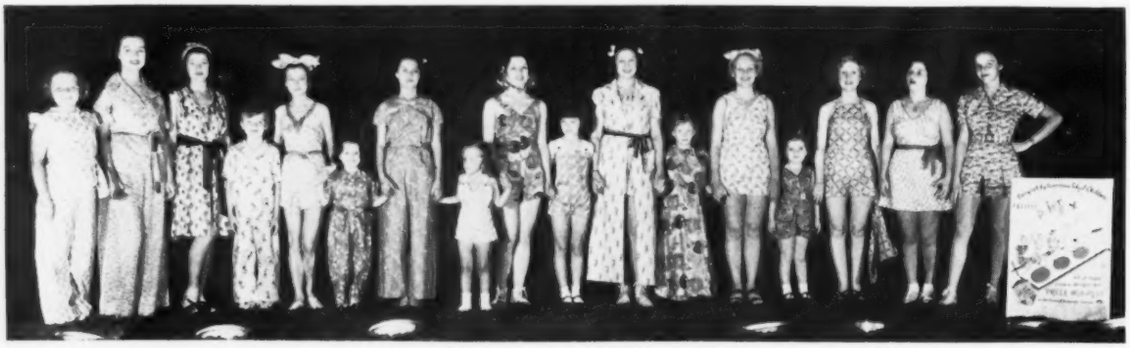
FIND OUT what the consumer wants—and let her have it! Behind that supposedly simple principle lies the secret of an interesting textile merchandising success of 1937, namely the Paint Box Prints, sponsored by Pacific Mills, New York. This promotion, based on a Young Designers' Contest conducted nationally in collaboration with *Woman's Home Companion*, has proved so effective from a sales aspect, that the company is determined to make the Paint Box Series a permanent unit in its lines of children's fabrics, with the regular additions each season of new designs.

The idea of the contest might be traced back to several years ago when a collection of paintings by children were brought here from Europe and attracted widespread interest. The thought of having children design their own textiles then developed. On mutual arrangement with Pacific Mills, *The Woman's Home Companion* announced the contest last March; the rules were: any boy or girl, ages 7 to 15 could compete, and the entry must be an original design, drawn or painted on paper, for printing on cotton fabric. The event evoked an instantaneous and nation-wide response, and when the contest ended in April a total of 36,835 designs had been submitted by children in every state of the union. The largest single group was geometric designs totalling 6,363; the florals ran second. Originality, of course, was the dominant characteristic; topics for designs included birds, fowl, household items, school equipment, umbrellas; a notable point was the large number of designs based on knitting needles. To the children submitting the 39 best designs, cash prizes totalling $500 were awarded. Alando Araujo, aged 8, of Merrick, N. Y. won first prize, $100, while second prize, $75, went to Doris Bjorklund, aged 13, Renton, Wash. Winners were selected by a committee of textile design experts, who sorted the vast mass of entries down finally to the 39 prize-winners. These designs were printed on five fabrics, made up into a wide range of children's garments and introduced to the retail trade at a "Paint Box Fashion Show", held at the New Yorker Hotel, New York, Sept. 30. The garments, which were modelled by child radio stars from the studios of the National Broadcasting Co., were selected by a committee comprising Miss Toba Tobe, of Tobe, Inc., Betty Green, Editor of Children's Wear in *Women's Wear Daily*, and Crete Dahl, editor of *Infants' and Children's Review*.

Executives of Pacific Mills said that "Paint Box Prints" have proved outstandingly successful. The contest has had three main advantages as follows: (1) it produced a group of novel and new fabrics which naturally appeal to children; (2) it supplied an excellent promotion theme for selling such merchandise; and (3) it added the well publicized name, "Paint Box Prints" as a permanent adjunct to the Pacific line.

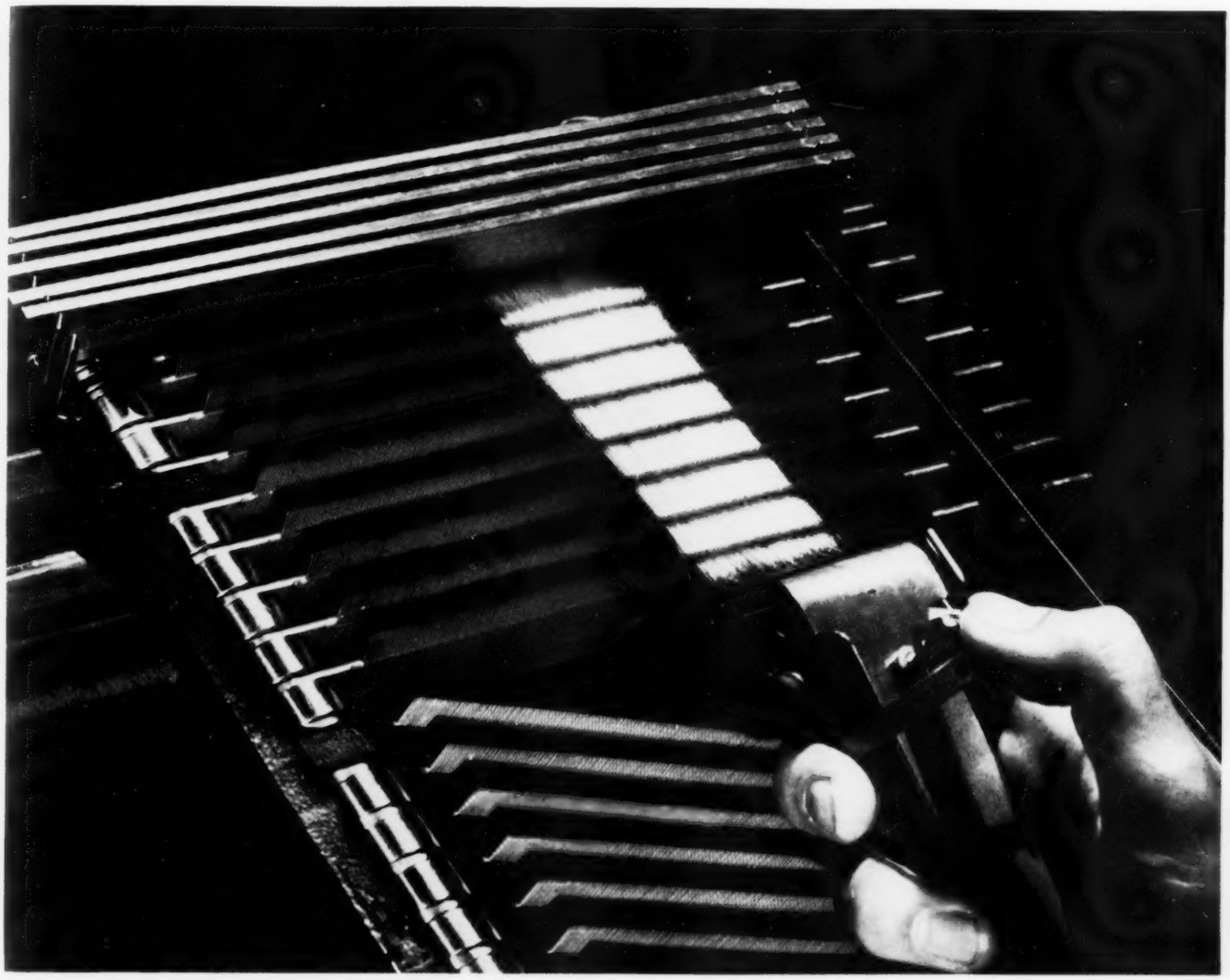
The designs themselves run the gamut of imaginative thinking; eliminating completely all standardized thought they use such themes as "all work and no play," a bucket and mop design, which is just what its name indicates, "Great Scott," a fantastic concept of a bear in kilts, playing bagpipes, "Bikes," airplane view of bicycles on parade, etc. The designs are selling well, and those mentioned above are among the leaders. The whole project was planned with minute care. Each design was given a name which carried the identity through to the consumer; a tag, "Paint Box Prints" serves this purpose.

Child radio stars model garments made from "Paint Box Prints" at Fashion Show



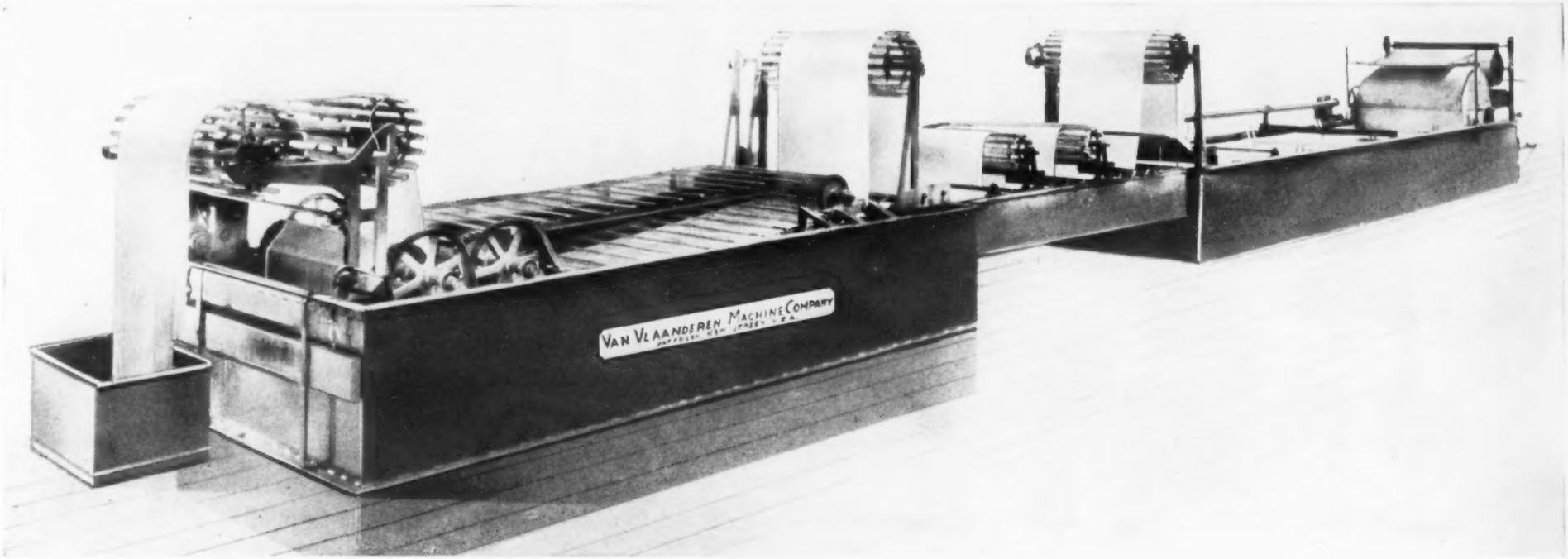
Eastman's Staple Test

LEADS TO BETTER YARN



EASTMAN ACETATE STAPLE is laboratory tested in every step of its production up to the point where it is cut, packed and shipped to the mill. Now, as a final safeguard, Eastman has added still another test—to determine fiber length after the staple has been carded and combed. Fibers from a cross-section of top are sorted on the apparatus shown above, weighed and charted on a diagram to show the percentage of normal-length fibers and the percentage broken in operation. To the textile man this diagram reveals the efficiency of his machines, the quality of his top—even helps him produce better yarn, lovelier fabrics.

Mills often are equipped to make their own fiber tests. If yours is not, and you wish an analysis, send a three-yard section of Eastman staple top to A. M. Tenney Associates, 171 Madison Avenue, New York City. Sales representatives for the Tennessee Eastman Corporation, subsidiary of the Eastman Kodak Company.



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GETTING THE MOST FROM WINDING

Information about winding designed to show improvements in winding equipment and new ideas in the winding operation

5 TO 6-INCH TRAVERSE (No. 50 Winder)

The increasing demand from silk throwsters for attachments to wind 3°30′ taper cones, the same as used for rayon, has been accompanied by a trend toward replacing the 5-inch traverse with a 6-inch traverse. Both changes have the advantage of increasing production and providing more uniform tension on the yarn.

Using a 6-inch traverse, it is possible either to put more material on the cone without changing the outside diameter or to wind the same amount of yarn and have a smaller finished diameter. In the case of the smaller finished diameter, there is less variation in winding speed from inside layers to outside layers and less necessity for careful adjustment of the differential tension mechanism.

The 3°30′ taper winds better cones with fewer imperfections than the 5°57′ taper. For high-twist yarns, there is less chance to draw in or roll on the base end of the cone. It also means less variation in diameter from base to nose of cone; thus, less variation in tension. The 3°30′ cone is larger in diameter, and starts with a higher winding speed which gives a greater spindle production.

This change in cone taper and traverse length is also being made by those throwsters having Pineapple Cone attachments on their No. 50 Winders, and the results are equally satisfactory.

SLUB CATCHER SETTING

The yarn diameter can be used as a guide for setting slub catchers.

When using blade - type slub catchers, the setting for carded cotton yarns is usually twice the yarn diameter . . . and for combed yarns, one and one-half times the diameter.

When using the MacColl needle-type slub catcher, it is usually advisable to have the opening double the amount recommended for the blade-type . . . that is, four times the yarn diameter for carded yarn, and three times for combed yarn.

Naturally, there are many variables making it impossible to adopt the above rules as standard. Some mills will find that their requirements for quality call for closer slubbing; others will have too many breaks and will find that the knot that is put in gives more trouble than the slub. A good rule is: if a mill must choose between knots and slubs, it is better to remove the slubs in the spinning room and get better winding at lower cost.

DISC-QUIL TENSION (No. 90 Winder)

Like many other mills weaving rayon fabrics, Pepperell Manufacturing Company is using No. 90 Leesona Winders equipped with the Disc-Quil tension, to prepare filling for the loom.

Used with overhead-overend delivery, the Disc-Quil makes possible higher winding speeds, including a quick start at maximum speed, and allows operators to turn out more production than when an unrolling supply is used. Winding 150 denier yarn and using the large, precise-wound Universal Cone as a supply, one operator can tend from 80 to 110 spindles, depending upon the diameter and length of the bobbin.

Super-twist yarns for crepe fabrics can best be wound from an unrolling spool supply, using either Type D or Type H Controlled Unrolling Tension.

FORMULA FOR DETERMINING YARN DIAMETER

(Cotton Yarn)

$$\frac{1}{32\sqrt{\text{count}}} = \text{yarn diameter}$$

or

$$\frac{.0312}{\sqrt{\text{count}}} = \text{yarn diameter}$$

Examples

Cotton Count	Diameter
10	.010″
15	.008″
20	.007″
25	.0063″
30	.0057″

(Worsted Yarn)

$$\frac{1}{22\sqrt{\text{count}}} = \text{yarn diameter}$$

or

$$\frac{.0455}{\sqrt{\text{count}}} = \text{yarn diameter}$$

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ADVERTISING PAGES REMOVED

The Overseers' Corner

Management Notes

for all *young* and some *old* overseers

By Robert Burgess

A MAN is never ready for a better job than the one he holds until he fills the one he has so full that he is running over, so to speak, with all the detailed information and knowledge in regard to it possible to absorb. He must have everything clearly in mind pertaining to it, and at all times be ready with facts and figures. It has been well said that "He who works for the dollar never gets it." There must be a real liking for the job itself and for the pleasure which comes of accomplishing something, in order to pave the way to success.

Having reached the position of overseer, do not sit back and feel that the goal is won. Do not think that since you are now in charge of the department that you can begin to take things a bit easier. That attitude will be fatal. It is true that you will be able to delegate much detail work to others, but increased authority brings with it increased responsibility. The reason that you are in this position is that previously you have shown yourself ready and willing to accept the challenge of responsibility. In your new position this challenge will be greater than ever because final judgment on all matters regarding your own department will be yours to pass—governed, of course, by policies established by those in authority above you.

From now on, your vision is to be the guiding impulse of your department and it will be taxed and tested. Thinking is to be the greater part of your job now and will require much of your time. A certain amount of detail will still be yours to handle, but that should be systematized in such a way that a part of each working day is left entirely free, possibly 25%, with nothing whatever to do—except think and plan. During this period you should anticipate every possible contingency and plan ways and means of meeting each one as it arises. Also, thought should be given to more efficient ways of carrying on the regular daily routine.

Many young men in their first overseer's position, as well as some older ones, make the mistake of thinking that they must make personal friends of their assistants. In this workaday world of ours everyone must know and keep his place. Each employee must be given all the consideration that his job calls for, but the overseer also must see that each one is doing the best that his ability permits. If the overseer does just that and nothing more, and if he does it in a spirit of fairness, he will command the respect of all in his employ. This is the greatest asset he can expect to develop, and is something which cannot be done if he begins making personal friends of some of those who work for him.

A systematic method of carrying on your work designed to express your intents and purposes must be established. Connected with the job there are many things that must be attended to each day; and, in so far as it is practicable, these should be done at stated times. Some of these are of enough importance to be given personal attention. For example, certain overseers find that giving out supplies in person makes it possible to have a personal word with the various section hands, and also presents an opportunity to see how the section men are carrying on, as reflected in the matter of supplies. Collection of waste might be given close attention as it gives a good picture of how certain operatives are functioning. And in the weaving department the matter of second-quality cloth should be handled in such a way that the loomfixer bears some of the responsibility. This can be done by having the inspection take place in that area in which the loom is located. Insist on a regular schedule in your department as it will not only help you in arranging your own time, but will also be very valuable in determining just where your assistants are at all times and what they are doing.

Theoretically, laying out work for machines to do in order to meet requirements is an easy thing to accomplish. Yet under actual working conditions it is not so simple, as many unforeseen contingencies may upset the best laid plans. A leeway of 5 to 10% is always a good safeguard.

Another troublesome matter the overseer has to deal with is the problem of labor shortage. One of the best remedies is a good-running job. The principle elements of a good-running job lie with the overseer himself. In the first place, he must see that all work delivered to his department is in first-class condition, and, if otherwise, accept it under protest. Then it is up to him to see that the work is properly handled in his own department. A good-running job, as a rule, means that there is an ample labor supply, since labor is not interested in a poorly running job except as a last resort. Other factors which attract labor are clean working conditions, satisfactory living conditions, proper attention to temperature and humidity in the mill, and intelligent leadership by all in authority. In addition to discouraging labor shortages, these conditions will engender a spirit of orderliness which will tend to become a habit with all.

Finally, be in a position at all times to give those above you exact information regarding your department whenever it is requested. It is then that it is wanted—not an hour or two later. Having to "look things up" shows a lack of interest in the thing which is part of your job and which should be receiving your attention. Furthermore, it is not enough to just look over reports; it is necessary that something impress them on your mind. A consolidated account of items of importance compiled by yourself is very helpful, and the actual compiling should be all that is necessary to impress them on you.

The successful overseer is always just a little ahead of the job and has things well in hand at all times. He cannot succeed by maintaining a list of things waiting to be done.

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A Good Word for Harmony

Editor, Overseers' Corner:

I do not hesitate to say that in my opinion you are performing a very worth while service for both industry and employees by publishing such human

CONTRIBUTIONS *to "The Overseers' Corner" are paid for without regard to length. We will use letters discussing any pertinent matter whether of mechanical, managerial or just plain human interest. Those who contribute kinks or practical helps will be paid additional for an appropriate sketch to illustrate their device. It is not necessary to submit finished drawings. If these pages interest you—contribute something to them to interest others. Address Editor, Overseers' Corner, Textile World, 330 West 42nd St., New York N., Y.*

documents as the one entitled "Harriman Harmony." Anything that will bring management and workers together on an equal footing is well worthy of a trial. When the worker realizes that his employer is human just like himself, with the same likes and dislikes, it will go a long ways toward establishing a more harmonious relationship.

A little common friendship will go further in some respects toward eliminating labor trouble than either high wages or good working conditions. We have had this clearly demonstrated during the recent epidemic of strikes. In some plants where wages were below the average, the employees voted overwhelmingly against the union; in others, where the wages were high, the vote was the reverse. In the first case the workers were bound to their employer by ties of friendship. An excellent method of combatting radical influences is for executives to become personally acquainted with their employees, and the writer believes firmly that any industrial plant could adopt the Harriman or some similar plan with profit.

—W.D.B.
Virginia

Nelson Fires Back

Editor, Overseers' Corner:

I was very much interested in the letter from Mr. Y. L. Chang with the heading, "China Declares 'War' On Thomas Nelson." I am sure China has enough war on her hands at the present time without having another.

If Mr. Chang had read the article and not merely glanced at a design on warp pique, he would have seen that the design given was for the specific cloth mentioned in Fig. 1. He would also have seen the following: "The usual warp pique weave has the picks alternating, etc.," and a weave like this was given in Fig. 5.

It will probably be interesting to note that the sample submitted was made by one of the largest mills in the country.

—Thomas Nelson
Dean of Textile School,
North Carolina State College

What Holds the Shuttle?

Editor, Overseers' Corner:

I wish to comment, rather belatedly, on the article, "What Holds the Shuttle?" by Ivar Moberg, in the July, 1936, issue of Textile World.

Mr. Moberg states in effect that in addition to the force of gravity that holds the shuttle against the reed there is another force, the lateral influence of the backward motion of the lay. In my opinion the shuttle stays on the race plate in spite of the lateral influence.

The backward motion of the lay has a tendency to leave the shuttle behind due to the inertia of the shuttle. If the lay were stationary on back center or its movement were confined to only a forward motion during the flight of the shuttle, this tendency to leave the shuttle behind would not be present.

In addition to the force of gravity, a decided influence in keeping the shuttle against the reed is the position of the picker rod, which should be kept adjusted to throw the shuttle slightly against the reed.

—Melvin R. Williams,
Pennsylvania

Should Overseers' Meetings Be Technical or Social?

Editor, Overseers' Corner:

Man is by instinct a gregarious creature, and an organization that starts out to be technical soon trends toward the social. This is especially true of technical organizations holding meetings infrequently without giving members ample opportunity for sociability.

The purpose of the National Association of Woolen and Worsted Overseers, according to its constitution, is the "dissemination of knowledge pertaining to the growth and manufacture of wool."

To the uninformed observer, the meetings of this association might appear to be purely social; and even so, they would still have a very definite value. What could be finer than for these several hundred overseers to get together for a good time—meeting old friends and making many new ones?

Listen to Bill and Joe who worked together, maybe twenty years ago, and are now in separate mills. It's: "Do you remember this?" and "How is Charlie? Is he here today?" Keep on listening and you will hear something like this: "Say, I am having a bit of trouble with a certain fabric—do you know anyone who can help me out?" A look around the room reveals just the man, and Bill and Joe saunter over and join the group where he is. There will be some hand shaking and back slapping and you will hear a chorus of hearty laughs, indicating that a good story is being told and a grand time is being had by all. Purely social is it? Wait a bit. The man having trouble is being led away by his new-found friend, and you will see them sitting quietly in a corner in earnest conversation until the bothersome problem is solved. This is surely mixing the social and the technical, and, in this case, the social made the technical possible. Who shall say which is more valuable?

In many cases a life-long friendship is formed in this way, and the man and the mill in trouble have profited also.

It is because of this proven value that the National Association of Woolen and Worsted Overseers has endured through the years, and has continued to grow and prosper in a substantial manner.

Social? Yes, why not? Technical? Yes, individually, when needed. The interests of the overseers from the different mill departments are too diverse to be met by one technical subject discussed in a common meeting, but there is ample opportunity in a seemingly social gathering to find the technical information needed to solve any manufacturing problem which may arise from the sheep's back to the packing case.

—Clarence L. Cutler, *1st Vice-President*
Nat'l. Ass'n. Woolen & Worsted Overseers
Methuen, Mass.

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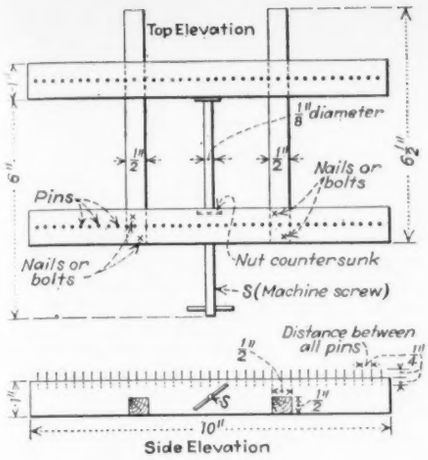
Overseers' Practical Helps

Laboratory Tenterframe

A laboratory tenterframe can be helpful in developing new finishes, testing finishing mixes, and compounding new formulas for starching or finishing fabrics. Also, such a device is obviously less expensive than trial-and-error methods of experimenting on a large tenterframe. The machine described is made to duplicate the action of a large machine, and yet is small enough to fit into an electric oven in the laboratory.

The miniature tenterframe is made of oak, or of a suitable hardwood, according to the dimensions shown in the sketch. Each of the 1-in. square members has a row of pins counter sunk, to hold the sample of cloth while it is stretched and dried. The action is similar to that of a regular tenterframe. Screw S, which is used to adjust the width between the parallel rows of pins, is a machine bolt with standard threads cut nearly the full length. Nut on one of the parallel bars is countersunk so that it will not turn, which makes it possible to adjust the distance between members by turning screw.

Operation calls for a sample swatch



Working drawing of laboratory tenter-frame

of fabric to be impregnated with the starch or finishing material. The frame is then adjusted to width by means of the screw, but care must be taken not to put too much tension on the fabric. Lengthwise tension is adjusted to duplicate that of a large frame. The frame is next placed in the oven which has been previously heated to a predetermined temperature. Gradually, the desired tension (width) is put on the fabric as it dries.

—J. E. GILL
Ohio

Controlling Algae in Air Conditioners

Algae growth in air-conditioning equipment using cold well or spring water for cooling and dehumidification often causes serious operating and maintenance troubles. The spores of some varieties of these minute plants multiply rapidly at the temperatures prevailing in conditioner spray chambers and have a tendency to foul spray nozzles, spray pans, and eliminators. In addition to lowering efficiency by blocking water and air passages, these growths often die and when decaying impart a distinctively unpleasant odor to the conditioned air.

Where algae formations build up rapidly, the only economical solution of the problem is to treat the water entering the conditioner with chemicals so that the plant spores are killed before they have time to reproduce. Chlorine, chloromines, potassium permanganate, or copper sulphate are the agents commonly used to accomplish this result. The proper agent and proper quantity of dosage required is governed by the type of algae, operating conditions, and considerations of cost. It can best be determined by experiment, as each installation has its individual problems.

In many locations, however, algae growth is relatively slow and can be controlled by cleaning the conditioner before its accumulations become troublesome. Where the frequency of these cleanings is not too great and where it is possible to remove the conditioner from service during the time required, this method may prove to be more economical than pretreatment of the spray-chamber water with chemicals.

In one large industrial installation it was found that by cleaning conditioners each week end, algae formations could be prevented from reaching serious proportions. The procedure developed for this cleaning is as follows:

1. Shut down the conditioner fans and pumps.
2. Close the cold-water inlet valve.
3. Remove all thermometers and temperature-controller bulbs from the spray-water system and plug these openings.
4. Block open the spray-pan steam-admission valve, and bring all the spray water to a boil.
5. Add a box of common soap powder to the water and run the spray pumps for 15 min., taking care that the pumps do not become steam bound.
6. Clean baffles and eliminators with a hose, using hot soapy water taken from a connection on the discharge side of the spray pumps.
7. Shut down the spray pumps, drain the conditioner, and with a cold-water hose wash out any sediment from its bottom.
8. Restore the conditioner, its valves, and controls, to normal and place back in service.

This method of algae removal has proved very effective and is accomplished with a minimum expenditure of time and labor, an important factor where a number of conditioners must be cleaned.

—S. H. COLEMAN
Virginia

Dyeing Corset Cloth

The problem of a dyer was: to dye 10,000-yd. lots each of various viscose-rayon-warp striped corset cloths in fast to light colors with the rayon about 50% heavier than the cotton, guaranteeing that each 10,000-yd. lot would be the same shade from the beginning to end, and that the low-grade cotton used would be freed from all unsightly neps, seed, etc.

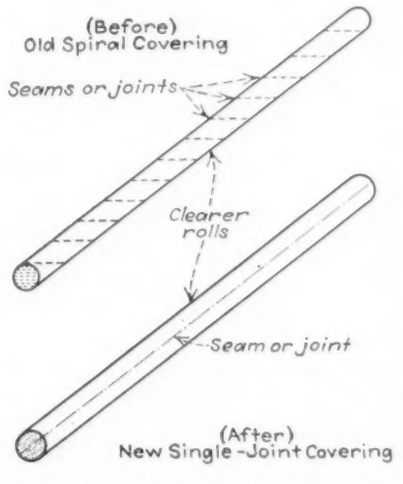
The problem was solved as follows: goods were processed, 20,000 yd. at a time, desized, kier boiled at atmospheric pressure with 1¼° Tw. caustic soda, and bleached with sodium hypochlorite. After drying, the goods were run through a padder in a solution composed of 8 oz. Solantine Red 8BL (C.I. 278), 12 oz. aluminum sulphate, 4 oz. formic acid (full strength), 20 oz. alcohol, and 100 gal. water, at 120°F.

VOCATIONAL SCHOOLS

INCREASED interest in developing skilled workers is shown in the number of vocational schools which are in operation this fall. In addition to the regular textile and trade schools, mills which have organized their own schools include Manufacturing Division of Marshall Field & Co., Spray, N. C., Firestone Cotton Mills, Gastonia, N. C., West Point Mfg. Co., West Point, Ga., Wabasso Cotton Co., Three Rivers, Que.

Covering Scavenger and Thompson Rolls

Scavenger or clearer rolls on cards gave the writer much trouble at one time due to shedding the cloth after having been used only a few months. Various remedies were tried, and none worked. Several kinds of glue were used. The roll-covering man tried his hand at the job with no success. Ordinarily, the woolen cloth was wound spirally on the roll, and it seemed that perhaps something might be wrong there. The ends were tacked to a wooden peg pushed into the end of the steel rod, and the card tenders were forced to push the clearer waste off against these spiral joints. This looked like the immediate cause of trouble. A more careful study showed this to be true, and the shedding was stopped by using one strip of cloth for the entire length of the roll with the joint running parallel to the roll rather than around it. The roll-covering man found that the rolls could be covered in the same



A single-joint covering for scavenger or clearer rolls will prevent shedding

machine that the spinning lap sticks were run in. Some of the rolls have been running three years and are in good condition yet. The same procedure might be carried out in covering Thompson or strip rolls for the cards.

—LAMAR FOGLE
Alabama

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Questions & Answers

Streaks in Hosiery

Technical Editor:

We are inclosing a sample of knitted hose showing heavy and light streaks in it that troubles us considerably. We have been unable to find out definitely just where in the processing these heavy and light places were made.

As yet we have not been able to find any of this yarn in our plant, and we did not know that we have made such yarn until our knitting yarn customers sent back the knitted fabric. We do not know how often this occurs or what quantity we have in our regular production, but we are inclined to think there is very little of this defective yarn going out or we would certainly be able to locate it in our plant before it goes out.

Can you advise just what process these heavy places were made on. (8423)

Preliminary observation of this sample indicated that the defect is due to uneven yarns. Further examination of the fabric texture shows no indication of different texture at the light and heavy bands. If this defect were the result of variable tension, it would seem likely that the texture would vary, at least slightly, in the different parts of the sample.

Yarns were raveled from three different places in the fabric after marking portions which seemed light and heavy. The yardage, weight and counts are shown in the following table:

Area	*Yards*	*Grains*	*Counts*
Light	21.0	8.8	19.88
Heavy	18.0	8.7	17.20
Light	19.5	8.2	19.80
Heavy	21.0	9.0	19.41
Light	18.0	7.8	19.50
Heavy	21.0	10.0	17.50
Light	15.0	6.5	19.20
Normal	58.5	26.3	18.20
Heavy	28.5	13.2	18.00
Light	15.0	6.4	19.55
Heavy	37.5	17.7	17.67
	273.0	122.6	18.56

Note that the table shows three heavy bands having counts between 17.20 and 17.67s, and a fourth band at just 18.

The average count for all of the reelings is 18.56s.

The light bands show counts varying between 19.20s and 18.88s.

This table shows that, for the most part, in the heavy bands the yarn is about 10% coarser than in the light bands.

Now, as each sizing is an average of 15 yd. or more, it is quite likely that the light bands have some yarn running lighter and the heavy bands have yarns running heavier than these figures indicate. If that is the case, the maximum difference between the light and heavy yarns is considerably above the 10% calculated for these averages.

Further examination of these samples fails to disclose the exact cause of the streaks. There are a number of possible causes which we are listing below and a check-up in the mill may show which is the real one. The most likely causes are: (1) too much short fiber in the bales, (2) insufficient weighting on the top rolls of some of the machines, (3) top rolls not running smoothly, (4) too much tension on the roving processes, too heavy travelers. Other possibilities are: (1) improper mixing of the cotton, (2) settings between first and second drafting rolls on all machines too wide and settings between back and next to back rolls too close, (3) too much twist in back stock roving; (4) eccentric rolls, especially at drawing, roving, and spinning, (5) roll cots too soft or loose, (6) travelers not changed often enough, (7) mixed travelers, (8) piecings and singlings at all processes, (9) use of oil on raw stock at openers or pickers.

Finally the possibility should be mentioned that the trouble is in the knitting rather than the spinning. For example, a check should be made to see if any oil is getting on the yarn while the goods are being knit.

Moire on Rayon Taffeta

Technical Editor:

Inclosed is a sample of rayon taffeta showing a moire effect. These goods come to us for finishing from different gray mills. Our finishing procedure is as follows: Desize on a 2-bowl pad with Diastafor, running goods up on rolls and batching up loose; let stand 2 to 3 hrs.; and then run on jigs for scouring. The tension on the jig is very loose, so that we do not get tight rolls. The only place I find the rolls batching tight is when I shell the goods up off the jigs. The goods are then extracted in a roll extractor and dried on a tenter frame. After framing, we dye and finish in the same bath and then frame again. The goods are calendered on a three-bowl plain silk calender under about 12 tons pressure. I hope that you can be of some assistance to me in locating the cause of this condition. (8449)

The moire effect is probably caused by the tension on the roll as it batches up off the jig. This is further aggravated by the centrifugal pressure in the roll extractor. The use of a tension block on the batch roller will cause the taffeta to batch up more loosely and do away with one possible cause of moire effect.

The two illustrations show the design and applications of the tension block. In Fig. 1 a flanged pulley *A* with square hole fits into wooden blocks *B*, clamped with steel screws *D* and square nuts *E* which are tightened by means of the knurled knobs *C*. Spring *F* forces blocks apart when loosened. More or less tension is applied by tightening or loosening knob *C*. Fig. 2 shows a cross-section of a jig with the shell in process of rolling up. The block is placed on the square shaft *A* and is either wedged or tied so that the tension may be applied to the shell to make it wind up more loosely. *A* is the shell with the usual square shaft; *B* is the motor-driven jig roll; *C* is the cloth. Arrows show directions of the cloth.

The procedure as given in the question is the one usually followed, with one possible exception. Equally often the cloth is extracted on a full-width vacuum slot extractor. This is located either in the dyehouse where it is run as a separate unit or the extractor is located as one of the tension bars on the drying tenter. In the latter case, the drying and extracting become one operation with the attendant time and labor saving.

Tenter dried goods often leave the frame just barely dry. This means that they still contain more than the normal moisture regain. In this condition the cloth will moire with very little tension on the frame batch roller. Hot, dry goods will moire only with excessive tension. The best means of avoiding either of these possibilities is to dry the cloth fully and then, before batching, to pass it around the water-cooled cylinder which is at the delivery end of most frames.

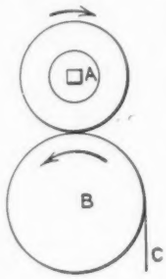


Fig. 1

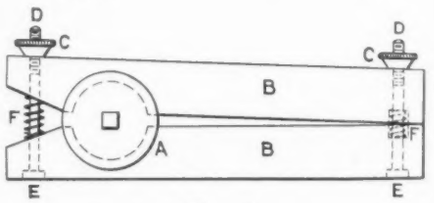


Fig. 2

Another possible cause of moire may be batching up too tightly as the cloth leaves the calender. Careful regulation of tension on the batch roller will overcome this.

Blue Spots on Cotton

Technical Editor:

We are having complaints from the bleachery on blue spots showing up in the attached sample of gabardine check. They state that it is caused from colored fly or crayon marks. We do not run any colored cotton and do not mark the yarn in the warp or filling with blue crayon. However, we do use some blue crayon to mark the roving. Attached to the sample is a piece of this crayon, also some samples of marks from bagging and cotton taken from bales of cotton. These marks are put on the bales by the shippers for identification.

If you will notice, where each one of these spots occurs, the center of the spot appears to have a little brown stain which resembles jute. We wonder if in the bluing wash these little particles of jute would have an affinity for the blue used and collect enough to spread and run into the surrounding cotton fibers, causing the discoloration. We shall appreciate it if you will examine the sample and give your comments on the probable cause of this trouble. (8486)

We are inclined to believe these blue spots are due to the stencil marking coming off the burlap or bagging which surrounds the bales of cotton. Our conclusions are based on the following:

The blue crayon which was submitted is evidently made from ultra-marine blue

or some similar coloring matter, as shown by the fact the color is destroyed in the presence of acid. We put some chalk marks on the cloth, thoroughly rubbed them into the fabric so that they were entirely embedded in the cotton fibers, and then spotted this blue spot with dilute hydrochloric acid. The color disappeared immediately. We tried the same treatment on the blue spot in the cloth—in fact, even boiled the cloth in fairly strong hydrochloric-acid solution —and we failed to move the spot. Indeed, we are inclined to believe the acid treatment intensified the spot.

We then took the cotton which had the blue coloring on it as well as the burlap which had the coloring on it and boiled each of these separately in a hydrochloric-acid bath. We removed some of the color from the cotton but failed to effect that on the burlap appreciably. The reason for this, of course, is quite obvious, as this blue coloring on the bag and on the cotton was evidently methyl violet or a similar dye. The jute from which the burlap was made contains a crtain amount of tannin and tannin-like substances which act as a mordant for basic colors similar to methyl violet.

We noticed in some of the spots a vegetable fiber which did not quite resemble cotton. Therefore, we are inclined to believe some of this blue discoloration comes from small amounts of jute which have become mixed in the yarn.

Likewise when basic colors are used on raw cotton and there are bits of leaf, etc., in the cotton, it is quite possible the tannin content of the leaf and other parts of the cotton plant other than the fiber itself contain a small percentage of tannin or tannin-like bodies to which the dye can affix itself.

Cards for Meltons

Technical Editor:

What is the best system of cards to use for pulled wool to make friezes, meltons, etc.? How many 48-in. cylinders for each section? (8458)

We recommend four-cylinder sets when 48-in. cylinders are involved, arranged with metallic breast, double breaker section, intermediate feed, and double finisher section with condenser.

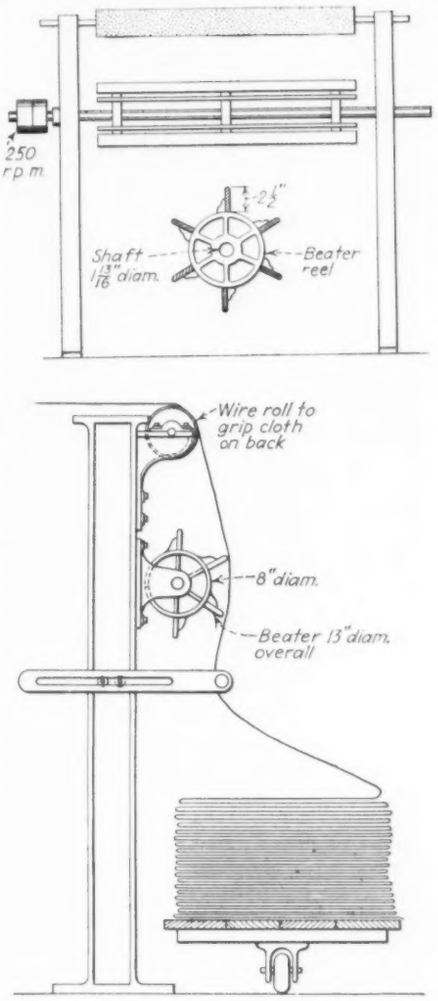
Finishing Pile Fabric

Technical Editor:

We are inclosing a sample of pile fabric. We are using a Gessner double-acting napper and a Davis & Furber single-acting napper. We have been running into a lot of difficulty to keep the nap one-way. In some of the pieces, when finished, the nap is running crossways and in different directions. Possibly you can suggest some method for overcoming this difficulty. (8470)

In handling the pile fabric in question (a knitted overcoating), if either of the nappers is equipped with a laying brush on the back, the brush should be applied to the cloth on the last run to comb all the fibers and make them parallel. This will help the shearing, presenting all the napped-up fibers in a uniform length to be cut evenly. **Cropping wet is a decided advantage, using the wire raising brush to** lift the pile erect for the shear blades.

Many pile fabrics are whipped as they are run into the dryer. A simple whipping device, (see illustration), can be attached to the cloth dryer to act as a beater. The strength of the beat is regulated by the sliding roll holder just above the truck of cloth. The wire-covered roll at the top of the frame holds the cloth steady, and avoids a lot of handling which might disturb the nap. When the cloth is run over a beater of this type, the nap usually holds its position after drying. To keep it from getting crushed later it pays to do up the goods for shipping on hook frames so the pile is not crushed by the back.



Whipping device attached to dryer for pile fabrics

30s Yarn from 50s Top

Technical Editor:

We are sending under separate cover a sample of 50s top from which we are spinning 30s count. We also inclose a sample of the yarn. This yarn is to be used two-ply for knitted outerwear. Is the top suitable to make this count, and if so what drafts and doublings would you recommend? (8415)

The sample was compared, under the microscope, with the U. S. standard 50s grade, and also with a standard commercial 50s grade. The sample submitted varied considerably from the U. S. standard 50s, but there was less difference noted when it was compared with the commercial standard 50s. Realizing that the grades of today are not up to the standards formerly obtained, we believe there may be room for argument as to whether the sample of top should be graded as 48s or as 50s quality. Later evidence obtained from the yarn will be given to support our contention that the quality is not a strict 50s, but averages about 48s.

Staple: (Hand drawn on velvet board)

	Submitted Sample	Standard Commercial Sample
Maximum staple	11 in.	10½ in.
Approximate average staple	4⅛ in.	4⅛ in.
Draw or pull	Excellent	Excellent

The top submitted is not suitable for the count required. In a cross-section of a 30s count, single yarn there should be an average of 24 fibers. The yarn submitted was tested for count and found to be 30.7s. It was also tested for the fibers—average number—in a cross-section. Only ten tests were made, which resulted as shown in the table.

Test	*Fibers in a Cross-Section*
1	24
2	18
3	20
4	25
5	12
6	25
7	33
8	18
9	17
10	22

Ten tests—Average 21.4 fibers.

The average number of fibers required for a 30s. count, spun from 48s quality top, is 21.12. This figure compared with 21.4 fibers supports our contention that the top quality is an average 48s.

Examination of the yarn submitted revealed the following characteristics: It is cockly, which indicates short ratching in the spinning and perhaps injudicious setting of the carriers. In addition, a mirror test—winding the single yarn on a black cardboard with equal spacings and under uniform tension—disclosed an unevenness in the yarn. Naturally there are many weak, thin places which, when tested by hand, pull apart easily, without any snapping action.

Even with these defects, we compliment the spinner, for we consider the yarn to be a fair result from the top which he had to process.

The spin obtained must prohibit high speeds; and if the sample submitted, represents the average, there must be trouble in the twisting, if it is twisted direct from the bobbin.

The treatment in the drawing will have much to do with the spin. We would set the ratches in the drawing so that the staple would be broken down to 10 in. In fact, we might try breaking to 9½ in. to eliminate the freak long fibers and also to obtain better control with the ratch in both drawing and spinning. If your spinning frames are 4-ft. end frames, you may find it impossible or impractical to set the ratch at 10 in. With proper ratching, correct spacing of carriers, and adequate pressure on the top front rolls, much of the cockliness should be eliminated.

Slow speeds on the heavy end of the

drawing and the proper amount of olive oil—4 to 5%—will also help to produce a better spin and a more even yarn.

In answer to the request for a suitable layout for this top, we submit two. The layout with six operations, using a single end at the rover has been used, spinning 30s out of a 50s quality top—a blend of 50% New Zealand and 50% South American. The second layout is suggested as a means to obtain a more even roving, a better spin, and a stronger yarn from the sample of top submitted. However, the six-operation layout will produce a yarn which will have more of the required knitting characteristics—loftiness, softness, and brighter color.

Contraction in the drawing will probably increase the figured drafts, so that the actual drafts will be about 3 to 3.5% higher after the can gill. In the spinning, the actual draft should not exceed 10.33.

Six Operations

	Doublings	Figured Draft	Dram Weight	Ratch
Can Gill...	6	7	411	
2-Sp. Gill..	6	7	353	
Drawing ..	5	8	220	10½ in.
Weigh Box.	5	8	137.5	10¼ in.
Finisher ..	3	8.3	49.8	10 in.
Rover	1	8.3	6.0	9¾ in.

Seven Operations

	Doublings	Figured Draft	Dram Weight	Ratch
Can Gill...	6	7	411	
2-Sp. Gill..	6	7	353	
Drawing ..	5	8	220	10½ in.
Weigh Box.	5	8	137.5	10¼ in.
Finisher ..	4	8	68.9	10 in.
Reducer ...	3	8.3	24.9	9¾ in.
Rover	2	8.3	6.0	9¾ in.

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Piedmont Division

attacks carding and spinning problems at fall meeting in Charlotte

CARDING and spinning problems were attacked by over 100 operating executives at the fall meeting of the Piedmont Division of the Southern Textile Association, held Nov. 6, at Charlotte, N. C. The attack was directed by the chairman of the section, Marshall Dilling, secretary and superintendent of A.M. Smyre Mfg. Co., Gastonia, N. C. Discussion of carding problems was led by B. M. Bowen, superintendent of Salisbury (N. C.) cotton mills; that on spinning problems by J. C. Edwards, general superintendent of Morgan Mills, Laurel Hill, N. C. Brief addresses were made by Edwin M. Holt, president of the Southern Textile Association; and by F. Gordon Cobb, past president and former secretary of the group.

Carding

Opening the carding session, Mr. Bowen asked what effect twist in roving has on breaking strength of yarn. Mr. Holt said that he thinks the amount of twist should depend entirely on the drafting. There should be sufficient twist to prevent the roving from stretching at the creels. Mr. Edwards agreed with Mr. Holt, and added that he uses 1.10 multiple on roving made from 1⅛-in. cotton. M. T. Poovey, superintendent of Hannah Pickett Mills No. 2, Rockingham, N. C., is running colored work from single roving making 14s. His front-roll speed is 200 r.p.m., which requires more twist than if double roving were used.

J. C. Edwards, who led spinning discussion

Unanimous opinion was that roving from long-draft frames produces yarn which is just as even and strong as that made on conventional frames. Mr. Holt reported that he had run a test frame equipped with a folding roll for several weeks on 2-hank roving going into 30s yarn, single creel. He could see no difference between this yarn and yarn made conventionally. J. B. Cornwell, superintendent of Republic Cotton Mills, No. 3, Great Falls, S. C., said that in making 9s from ⅞-in. cotton he had an increase in breaking strength of 3% and that the yarn was more even. Mr. Edwards stated that extensive tests on a long-draft fly frame showed it to give as good results in break and evenness as conventional frames. Metallic rolls were said to be as satisfactory as cork rolls, according to the test. Mr. Cobb called attention to the fact that doublings in the average print-cloth mill have been reduced from 4,608 a few years ago to 36 today.

With reference to carding practices, S. H. Sherman, superintendent of Trenton Cotton Mills, Gastonia, N. C., said that he had run a carding test on drafts from 100 to 140. On 1⅛-in. cotton being made into 40s, results were definitely in favor of the shorter drafts. John A. McFalls, superintendent of Entwistle Mfg. Co., No. 2, Rockingham, N. C., recommended low doffer speeds. Chairman Dilling added that slow and heavy carding gives the lickerin time to do a better cleaning job, but fast and light carding has advantages in that the doffer takes the cotton off the cylinder more quickly. He gets better results at 10 lb. per hour producing 40-grain sliver than producing 50-grain sliver, because the former is taken off the cylinder more quickly.

Break draft can be increased one or two teeth without making any great difference in the work, according to Mr. Lindsay. F. W. Bridges, overseer, Salisbury Cotton Mills, said that by taking out two teeth on the break shaft he

Brings Business Outlook to Wool Overseers

RANKLIN W. HOBBS, president of Arlington Mills, Lawrence, Mass., told the National Association of Wool and Worsted Overseers at Boston on Nov. 20 that whereas the present recession in business is one of record-breaking steepness, the vitality of the country's economic structure gives reason to expect a favorable outcome in due course. Less than 30 to 40% of the industry is now operating, the speaker said. Price apparently does not enter into the resumption of trade. Virtually a season's business has been lost by the industry, and the depression in wool is world-wide. The prospects for the winter do not appear at all bright, Mr. Hobbs declared, but he was sanguine for the ultimate outcome. In his brief address, he touched upon the value of trade schools, referred appreciatively to the University of Pennsylvania's forthcoming study of industry's selling policies and practices to be published in January, 1938, and to the United States Institute for Textile Research's published study of warp sizing. A fascinating portion of the address covered the influence of textile terminology upon the English language.

Clarence L. Cutler, Arlington Mills, Lawrence, Mass., was elected president of the National Association of Wool and Worsted Overseers on Nov. 20, succeeding H. E. Fulton. Bernard J. O'Reilly, Lowell, Mass., and Geo. W. Swallow, Utica, N. Y., both with the American Woolen Co., were elected first and second vice-presidents, respectively, and Fred Graichen, Marion Worsted Co., Norristown, Pa., was made third vice-president. Trustees elected were James Wilson, Weybosset Mills, Providence, R. I., A. L. Booth, Cherrybrook Worsted Mills, Woonsocket, R. I., and John J. Fanning, Shetucket Worsted Mills, Baltic, Conn. J. J. Burns, Livingston Mills, Holyoke, Mass., was elected secretary, and Leslie Gill, Premier Worsted Mills, Inc., Cranston, R. I., was elected secretary of the beneficiary department.

eliminated 90% of the lap-ups on his back roll. He has a draft of 1.05 on long-draft roving.

Cotton can be blended with other fibers, according to Mr. Cobb, by making laps of the fibers separately and blending them on an old-type cotton picker. This is supposed to keep the shade uniform. In carding rayon, lickerin speed is reduced and settings are closed up to prevent waste. Synthetic fibers are cut the same length as the cotton fibers for best results in mixing.

Spinning

Round-point versus square-point travelers was the first topic which Mr. Edwards brought up for discussion during the spinning session. W. S. Hartsell, overseer of spinning, Salisbury Cotton Mills, prefers the round-point traveler for fine yarns, although it becomes unthreaded easier at the doff. Mr. Poovey advocated the use of square point on 20s and larger. S. M. Couble, superintendent of Lincoln Cotton Mill and Laboratory Cotton Mill, Lincolnton, N. C., said that he uses both types—square point on 36s and 40s, round point on 50s and 60s. The square point gives 25% more wear and does not fly off as soon; also, it is 10% cheaper.

Consensus was that rings should not be turned over unless they are first reworked, but there was a difference of opinion as to the economy of reworking rings. It was pointed out that travelers must be carefully fitted to reworked rings or they will cause trouble.

Synthetic roll coverings were both condemned and praised; but all agreed that they are here to stay and will become increasingly important as they are technically improved. Mr. Dilling cited a test he had run for 48 hr. on 252 spindles, as follows: cork rolls produced 4 oz. clearer waste of dark color with no lap-ups; a white synthetic roll covering produced 11 oz. clearer waste of light color with some eyebrows but no lap-ups; a dark synthetic covering produced 17 oz. of clearer waste of light color with a large quantity of lap-ups. Mr. Edwards, discussing leather rolls, warned that different types of leather and tanning may produce different results in the yarn. He also mentioned that small motes in cotton may stick into the surface of cork rolls and cause trouble. An overhead cleaner will usually overcome this difficulty.

It was agreed that it is profitable to change over old spinning frames to long draft.

A. D. Elliott, who spoke on long-draft roving

feed plate to the tin cylinder at 0.007, doffer at 0.007, back screen at 0.022, middle screen at 0.029, two gages on front screen, lickerin at .0019, doffer comb at 0.019.

Long-draft roving is giving satisfactory results at Trion Co., according to A. D. Elliott, superintendent. Breaking strength is about the same or in some cases a little under that of conventional draft.

Long-Draft Spinning

Spinning problems were next considered. Guy R. Goodwin, assistant superintendent of Brookside Mills, Knoxville, said that 40s to 60s yarn made of single roving on long-draft spinning compares favorably with double roving made on regular draft, providing the roving is properly prepared.

Consensus was that it is harder to keep long-draft spinning rolls clean than conventional draft rolls. R. F. Gardner, overseer of spinning, Dixie Mercerizing Co., reported that with overhead blowers he finds it difficult to keep steel and leather rolls from accumulating fly. The tops of the frames (9,000 spindles) are kept clean by the blower.

The number of leather-covered top rolls necessary to keep rolls in good condition was said to be about 25 rolls per 1,000 spindles for 80 hr.

According to James J. Ashe, foreman of carding, Standard Knitting Mills, Knoxville, synthetic rolls are about as good for drafting as calf skin or sheep skin; they produce less licking up on combers than the varnished roll, since varnish has a tendency to soften when the humidity goes up. O. A. Burchfield, manager of spinning, Standard Knitting Mills, reported that he has about 200 rolls installed in his department, which are giving very good results and "look as if they might last forever." These rolls have been installed for five months.

Discussing weaving, Albert Ashton,

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Tennessee Division

discusses carding, spinning, and weaving at Knoxville meeting

CARDING, spinning, and weaving problems were discussed at the fall meeting of the Tennessee Division of the Southern Textile Association, held Oct. 30, at Knoxville, Tenn. B. W. Bingham, chairman of the division, presided.

This year's cotton crop was the first topic discussed under carding. Consensus was that the present Delta crop is not as clean or of as good character as the previous crop, due to ginning much of it wet. Color is off somewhat, and moisture is high—10 to 12%, in some instances.

Vertical openers producing 800 lb. per hour on 1¼-in. cotton should be operated at 500 to 600 r.p.m., according to G. W. Williams, overseer of carding, Cherokee Spinning Co., Knoxville. He reduced his speed from 780 r.p.m. L. B. Colbert, overseer of carding, Trion (Ga.) Co., runs his vertical openers at 750 to 800 r.p.m. on 1-in. cotton.

Single-Process Pickers

Single-process pickers on 1¼-in. cotton, reported C. O. Morgan, overseer of carding, Dixie Mercerizing Co., Chattanooga, should be set as follows: three beaters operating at 350, 800, and 940 r.p.m., respectively, second beater (three-blade bar type) is set about ¼-in. to the feed roll; finisher beater (Kirschner) is set about same distance to feed roll, beaters hit cotton 40 blows per inch. Mr. Colbert said that he has a 16-in. Buckley beater in the back making about 800 r.p.m., a blade beater in the middle operating at 1,100 r.p.m., and a carding beater in front operating at 1,000 r.p.m. A 56-yd. lap is made every 7¼ min. David Clark, editor of *Textile Bulletin*, remarked that he had ground cards at one time and recommends setting the Kirschner beater as closely as possible to the feed roll.

With reference to card settings, Mr. Williams recommended carding light and as slowly as production permits. On 1¼-in. cotton he sets the feed plate at 0.010, the lickerin as closely as he can get it to the cylinder, the back plate as closely as possible, the flats at 0.007, the doffer at 0.007, the comb to the doffer at full gage. On the same cotton, Mr. Morgan reported that he sets his

overseer, Brookside Mills, said that he leans toward the use of leather pickers of a good quality. Claude R. Bolding, assistant superintendent of the same mill, backed him up in this and added that he prefers leather pickers for "any model loom at any speed."

Filling should always be conditioned before weaving, it was agreed. Mr. Goodwin recommended letting it stand in the weave room after conditioning for at least 16 hr. before use. Mr. Elliott uses ¼ to ½% dressing solution and lets it stand about 3 hr. before using.

A number of suggestions for preventing warp kinks in piqué were made. Mr. Bolding said that one of the most important factors in making good piqué is to have good yarn since the nature of the weave will throw any irregular places in the yarn to the face of the cloth. The position of the reed is important. There should be as little lost motion as possible in the dobby if one is being used. On top-beam piqué it is advisable to use a ply yarn with a soft twist and very little size. A tight warp on the ground beam is necessary.

A nominating committee was appointed to select officers, who will be announced later. The committee consists of E. W. Hill, James J. Ashe, Guy R. Goodwin, and George W. Williams.

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Overhauling Chart

and instruction sheet insure thorough check-up of latch-needle rib-body machines

By Frederick J. Quilitzsch

KNITTING mills can save a great deal of money and trouble by giving latch-needle rib-body machines a thorough overhauling at frequent intervals, instead of waiting for them to break down and then having to make expensive repairs. At the very least, there should be a rule that the fixer is to go over his machines whenever production slows down in any section. It is preferable, however, to have one man do nothing but overhaul machines according to a regular schedule.

Use of the accompanying instruction sheet and chart developed by the writer will insure that each machine gets a complete check-up and also will give a record of the parts used on each machine. As the fixer completes each step of the overhauling procedure as directed on the instruction sheet, he indicates this in the "Date Fixed" column of the chart. Likewise, as he uses any parts, he notes this in the proper column. When the fixer has done everything called for on the instruction sheet, he has the foreman or assistant foreman check the work and so indicate on the chart.

The charts are filed to give a permanent repair record for each machine. If any parts break during the period between thorough overhaulings, this is indicated on the chart by making suitable notations in the "Date Fixed" and "Parts Used" columns. After the system has been in effect for a short while, examination of the charts will show whether some machines are requiring more frequent repairs and replacement of parts than are others. If this proves to be the case, an investigation should be made to find the cause of the trouble and the remedy for it.

Knitting Machine Repair Chart

Machine #.....Size.....Cut.....Feeds.....Make.....

	DATE FIXED	CHECKED BY	PARTS USED
TAKE-UP			
Rolls			
Gears			
Stop Chain			
Belt			
BRAKE			
CLUTCH			
CYLINDER			
DIAL			
CYLINDER CAMS			
Guard			
Stitch			
Landing; Clearing			
Rest			
DIAL CAMS			
Guard			
Stitch			
Landing			
Rest			
CARRIERS			
STOP MOTION			
NEEDLE PROTECTOR			
CYLINDER NEEDLES			
DIAL NEEDLES			

Instruction Sheet for Overhauling Latch-Needle Rib-Body Machines

TAKE-UP

ROLLS
1. See that there are no burrs on rolls.
2. Make sure that rolls turn freely.
3. Set rolls so that the cloth goes through easily without pressing it and leaving lines.

GEARS
1. Replace worn gears.
2. Make sure gears turn freely.
3. Check gears to see that they mesh properly.

STOP CHAIN
1. Check chain for weak links.
2. Set chain to stop machine if rolls drop too low or refuse to function.

BELT
1. Check belt to see that it is not too tight.
2. See that there are no weak places in belt.

BRAKE

1. Check brake spring.
2. See that the brake leather is not worn too much.
3. Make sure that brake stops machine soon enough.

CLUTCH

1. Make sure that clutch is not slipping.

CYLINDER

1. Check cylinder walls.
2. Make sure that cylinder needles are not wearing through top of cylinder. If cylinder is worn slightly, smooth with stone; if worn too much, have cylinder re-coned or replaced.
3. See that dogs are smooth.

DIAL

1. Check dial walls.
2. Make sure that dial needles are not wearing through bottom of dial. If they are, fix the same as cylinder.
3. See that dogs are smooth.

CYLINDER CAMS

1. Smooth surface of all cams.
2. Make sure that all stitch cams are ground alike.
3. Place all sections on machine and see that no cams are too short, thereby letting needles drop between cams.

DIAL CAMS

1. Smooth surface of all cams.
2. Make sure that all stitch cams are ground alike.
3. Put all sections on dial cap and see that the cams are fitted so that no butts will catch.

CARRIERS

1. See that all carriers are smooth.
2. Check holes in carriers to see if yarn has worn a groove in them.

STOP MOTION

1. See that stop motion is working at every feed.
2. Make sure that the stop motion stops machine quickly enough.

NEEDLE PROTECTOR

1. See that finger is set close enough.
2. Check plunger and see that it does not stick.
3. Make sure that the finger is set in the right position.

CYLINDER AND DIAL NEEDLES

1. Make sure that the needles are not bent.
2. Check latches to make sure that they are not loose or stiff.
3. See that the hooks are not opened up, thereby letting the latch drop inside.
4. Check throat for any roughness.

New Machinery and Processes

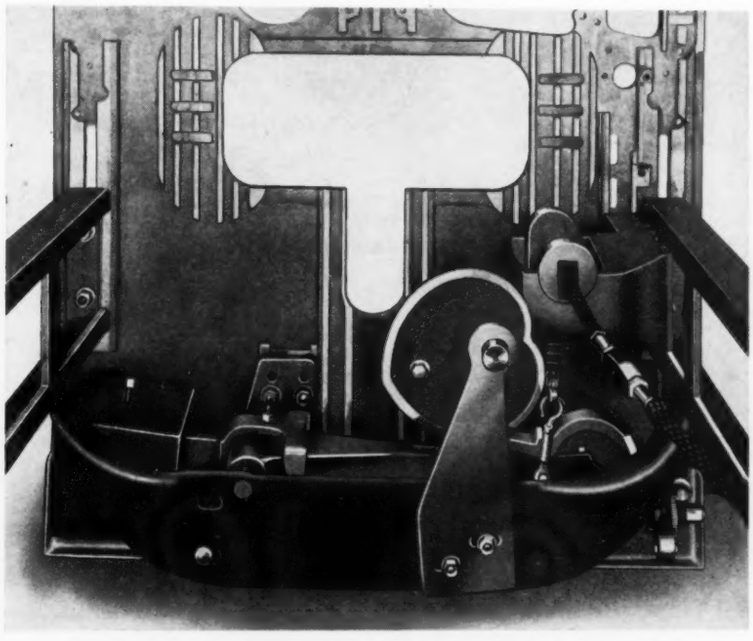
Builder and Traverse Motion

• The builder and traverse motion for spinning frames and twisters manufactured by Saco-Lowell Shops, 60 Batterymarch St., Boston, has been redesigned, due to the current trend toward longer spinning frames and twisters which resulted from use of wider gages and larger rings.

Basic features of the building motion have been retained, but the units which go into the assembly have been revamped to secure greater strength, rigidity, and durability. In addition, a strong and rigid builder cross-stiffener girt has been added, as shown in the accompanying photograph. Other changes in the builder motion include supporting of the builder-arm fulcrum at both ends by bearings, lengthening of the fulcrum, supporting of the builder arm on the builder-fulcrum stud, strengthening of the builder arm, etc. All these changes have as their aim reduction of wear and increased factor of safety against breakage.

As regards the traverse motion, the reverse cross-shafts have been eliminated, all of the cross-shafts now facing and running in the same direction. The new design eliminates quadrants and chains, both of which seem to have been the source of difficulty in long frames. Arrangements have also been made, in the redesign of the traverse motion, to overcome the tendency of bobbins at the far end of the frame to assume different contours and sizes from those at the head end.

Tests of the new builder and traverse motion are said to have shown that use of the new system permits more accurate balancing of the rail in all positions, reduces the power required to operate the traverse, eliminates any tendency to bind at any point on the ring-rail motion, and prevents trouble from chain wear and breakage.



Builder and Traverse Motion (Saco-Lowell)

Rotary Fulling Mill

• Several recently-developed parts and readaptations of some older features have been incorporated in a new rotary fulling mill which has been added to the line of Rodney Hunt Machine Co., Orange, Mass.

Width shrinkage in the new mill is controlled by a patented pressure device which, by a balanced lever arrangement, assures each bearing getting the same pressure whether or not one spring is weaker than the other. An exact reading of the pounds pressure shows at all times on a gage located on the fulling mill.

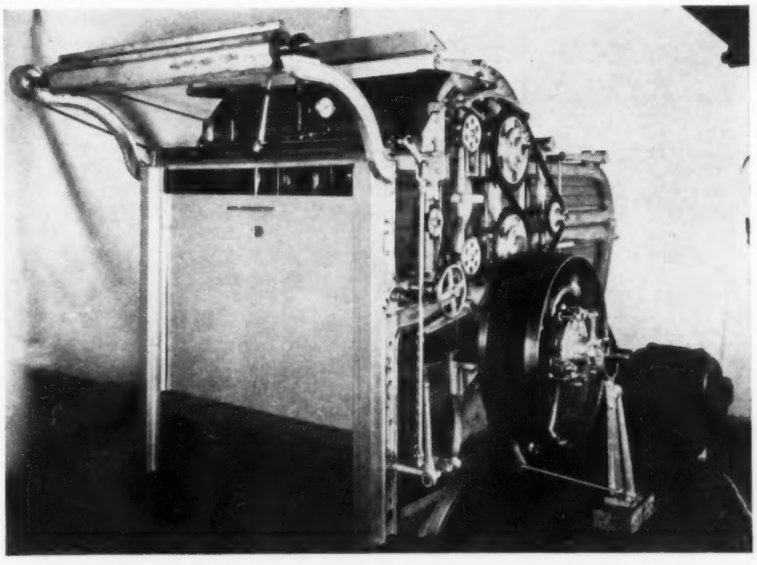
Length shrinkage is speeded up by use of packing canals, and a device for applying pressure to the curved end of the canal gives control on the time of bringing up the head. Discharge from the canal is constant, rather than intermittent as in older models of fulling mills.

Another feature of the new mill is an arangement by which the front top portion can readily be wheeled out of position, thus making relagging or smoothing of the rolls considerably easier and quicker. Further to facilitate these operations Rodney Hunt has designed a roll-turn-down machine, by means of which rolls can be smoothed off and new lags installed as often as appears desirable, without removing the rolls from the mill. For plants preferring to relag rolls in the machine shop an overhead truck and trolley device is available.

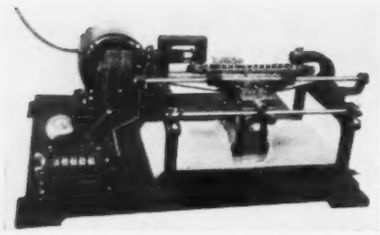
These mills are offered in a variety of sizes and capacities.

Portable Fabric-Testing Machine

• A portable fabric-testing machine, particularly adaptable for promotional work in retail stores, is now being offered by

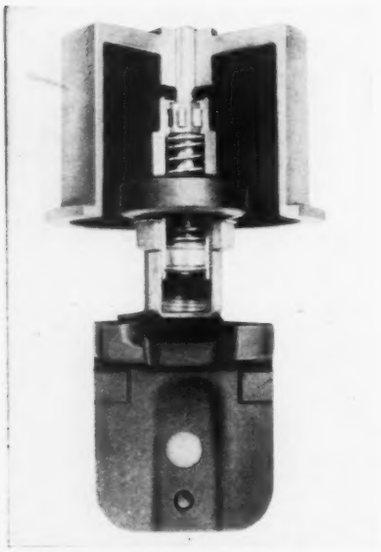


Rotary Fulling Mill (Rodney-Hunt)



Fabric Tester (Fidelity)

Fidelity Machine Co., 3908 Frankford Ave., Philadelphia. The device is a complete unit within itself, arranged on a base plate and equipped with a ½-hp. motor, a starting switch, and a counter. Fabrics to be tested are stretched tightly over base plate and rubbing block, respectively. Rubbing block is a hollow casing with a removable top which can be weighted to vary the rubbing pressure. The carriage is given lateral movement by means of a pin engaging a horizontal chain. Transverse motion is imparted to the carriage block by a long curved cam mounted on the carriage frame. The counter, which can be reset to zero at will, is prominently mounted on the base plate, actuated by a cam and rock shaft with suitable linkage to register at the end of each stroke. The machine weighs 110 lb. complete and is available in colors or in black-crackle finish and chromium plate.



Idler for Twisters (SKF)

Idler Pulley

• One of the latest applications utilizing ball and roller bearings is the SKF combination ball and roller bearing idler pulley for silk and rayon twisting frames, offered by SKF Industries, Inc., Philadelphia.

It may be secured as an individual unit for specially constructed pulleys or incorporated in three standard sizes of pulleys for idlers on tape-driven spinning and twisting frames and other light-duty machinery applications where uniform minimum drag is essential.

It is designed for large capacity and to accept vertical thrust loads. Located directly opposite the center of belt pull, a permanently aligned roller bearing assures this unit an unusually large capacity. A ball bearing at the foot of the unit carries the vertical thrust loads. It reduces power consumption and belt wear, it is said, and requires lubrication only once in every 10,000 hr. of operation.

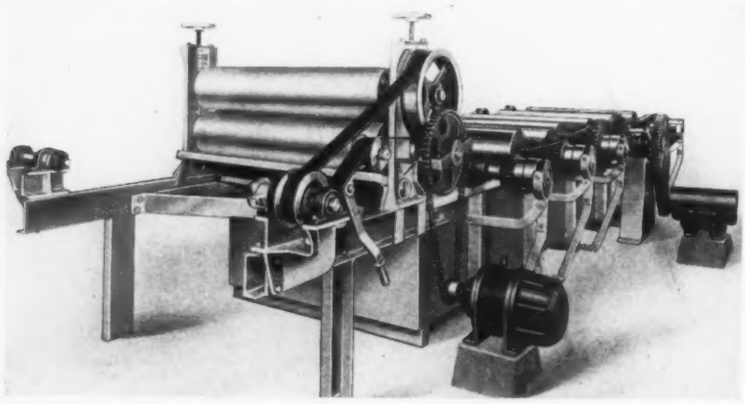
Tray Rack (Stackbin)

Progressive Jig

• For open-width boiling-off, bleaching, or dyeing Riggs & Lombard, Inc., Lowell, Mass., has developed a progressive jig. Advantages cited for the new jig are that it prevents creases which might occur in fabrics roped up in a kier; liberates for other purposes dye jigs which would ordinarily be used in its place; and involves a smaller investment than a group of dye jigs with the same capacity. It is also stated that the new machine conserves chemicals, since it squeezes excess liquors back into the bath after processing.

The goods enter the machine in the dry state, and are rolled progressively on to a series of six cylinders, the lower half of each cylinder rotating in the bath at all times.

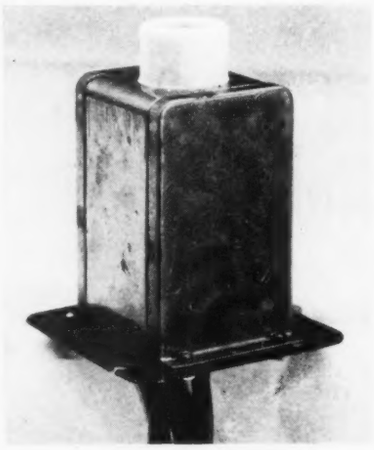
Maximum capacity of the machine is approximately 3,000 yd., this being divided into three 1,000-yd. batches. The machine can be built either with one long, open compartment or a series of compartments for a sequence of treatments.



Progressive Jig (Riggs & Lombard)

Warp-Stop Loom Transformers

• Designed to meet the requirements of the textile industry, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., now offers warp-stop loom transformers. The special units are totally enclosed and compound filled. Fuse protection is provided in series with the secondary to protect the transformer. This design excludes dust, oil, or moisture and reduces fire hazard to a minimum. The standard units are of conventional air-cooled control transformer design with end cases to protect the ends of the coils. Rated at 25 volt-amperes the transformers have a secondary voltage of 12 volts with primaries of 115, 230, 460, or 575 volts.



Warp-Stop Transformer (Westinghouse)

Rack for Trays and Boxes

• The problem of storing doffing boxes or filled spool trays waiting for collection and transfer is simplified by the new Stackrack, made by Stackbin Corp., Providence, R. I. This rack is of welded channel and angle steel frame, easily assembled, into which boxes slide like drawers. Bolting to the floor is not required. Boxes stored in Stackracks run no danger of spilling, are easier to handle, more readily accessible, and require less space.

Heating System for Cotton Slashers

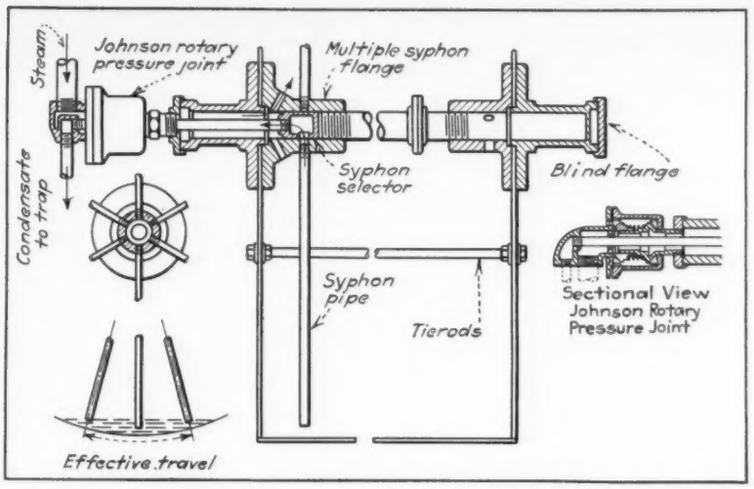
• A new system for heating cotton slasher cylinders and removing condensate therefrom has been developed by Johnson Corp., Three Rivers, Mich. The new system, known as the Speed Heet system, is said to give increases of 11 to 18% in production, due to faster heating and quicker

starting of the rolls. It is stated also that there is decrease in warp stretch and breakage, because of the lower friction obtained by use of a Johnson rotary pressure joint. This joint combines the functions of admitting steam to the rotating cylinder and at the same time removing condensate by means of a siphon pipe extending through the joint and terminating near the bottom of the cylinder.

Because of the tie rods or supports in large cotton slasher cylinders, it has been necessary to develop a special type of siphon shown in the accompanying illustration. Instead of a single stationary pipe, several siphon pipes are fastened to a special flange, which replaces the old flange inside the cylinder. The flange and siphon pipes revolve with the cylinder.

In the center of the flange is a siphon pipe selector, connected to the condensate pipe leading out through the joint. This piece, which remains stationary, has an opening at the bottom that registers successively with each hole in the flange into which the siphon pipes are screwed, as the pipes reach their lowest position. Thus an intermittent flow of condensate passes out of the roll through the joint. Because the siphon pipes are located within an inch or so of the bottom of the cylinder, and because the condensate is forced out through the siphon pipes by the steam pressure in the cylinder at a fast rate, the condensate level is kept very low. The siphon starts to drain the cylinder as soon as steam is turned on; therefore the machine does not have to be running to drain the condensate, and is said to be ready to operate in 15 min.

The Speed Heet system can be applied to present equipment.



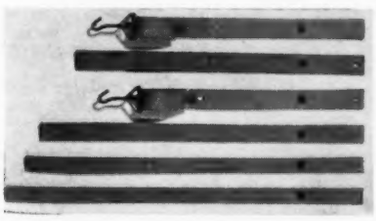
"Speed Heet" System for Slashers (Johnson Corp.)

Pressure "Liquivator"

• The Morehead direct-pressure "Liquivator", a unit for automatically transporting liquids by means of the displacement principle, has been announced by the Morehead Mfg. Co., Detroit, Michigan. It consists of a stationary pressure tank to which an operating valve mechanism is externally connected. Counter-weighted displacement tanks within the pressure tank provide the power for valve control through simple but effective leverage. The valve mechanism is separate from the tank and may be assembled with any sized tank for handling any given volume of liquid. A remote-control feature of the operating valves permits a variety of applications for special handling problems. Morehead Liquivators are available in metering and non-metering types.

Fabricated Loom Strapping

• A new type of harness or heddle strapping, known as Bull Dog Loom Strapping, is being manufactured by Boston Woven Hose & Rubber Co., Cambridge, Mass. It is asserted that the new type of strapping, which is a composition of high-grade cotton and rubber, mechanically made to precision measurements, overcomes all the usual difficulties and hazards attendant upon use of harness straps. The Bull Dog loom strapping is said to be exactly the same thickness throughout its entire length, practically impervious to action of moisture, non-stretching, and only very slightly inclined to shrink.



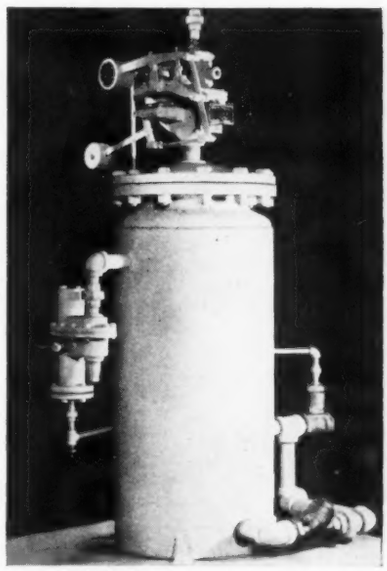
Bull Dog Loom Strapping

Fire-Hose Valve

• A new remote-control hose valve has been developed by Rockwood Sprinkler Co., Worcester, Mass. The valve is designed to prevent freezing in fire-protection piping running through unheated spaces in all types of buildings, as well as to minimize loss of water from leaky fire-protection piping running underground, where cost of replacement is high, due to the nature of the pavement.

On systems having the new valve installed there is no water in the exposed section of piping. The main valve, which controls the flow of water from city mains or other source of supply, is located where there is heat throughout the cold weather. The remote-control valves themselves are located at various points throughout a property; thus the piping between the main valve and the remote-control hose valve is normally empty.

It is stated that tests of the equipment, including one installation made in a 23-story building, indicate water was available at the roof of this building within 11 sec. following operation of the remote-control hose valve.



"Liquivator" (Morehead)

NEW DYES & CHEMICALS

General Dyes

General Dyestuff Corp. announces the following new products: Diazo Brilliant Orange 3G, a homogeneous developed color which in conjunction with Developer A gives a very bright red orange; with Developer ZA, a clear golden orange. Chrome Fast Yellow 8GL, a chrome color which yields dyeings even greener than Acid Chrome Yellow 3GL and possessing very good fastness to light, carbonizing, and decatizing, and good fastness to perspiration. Rapidogen Golden Orange IGG, a Rapidogen color yielding a full, clear, golden orange shade which links the Rapidogen Yellow and the Rapidogen Orange brands.

Crush-Proof Process

A new crush-proof process for rayon pile fabrics of the transparent velvet type is announced by the Rayon Department of E. I. du Pont de Nemours & Co. Designed particularly for transparent velvets with a rayon pile and silk back, process is said to impart to the pile a truly remarkable resistance to crushing. Tests are stated to have shown that transparent velvet treated by this process may be sat upon, or even walked upon, without injuring the appearance of the fabric. While the rayon pile is temporarily flattened, rapid recovery takes place as soon as the pressure is removed. The effect is particularly striking in damp weather, when untreated velvets are crushed by even a moderate pressure. Although pile fabrics are not ordinarily washed with water, it is significant that transparent velvet treated by this process may actually be washed, without injury to the fabric or finish. While the pile is wetted by water, it assumes a normal upright position on drying.

This new finishing process, which is cov-

ered by U. S. Patent No. 2,080,043, involves treating the fabric with a solution of formaldehyde in water, in the presence of a suitable catalyst, such as ammonium chloride. The finish causes no appreciable increase in weight, and is fast to dry-cleaning. Pile fabrics which have been made crush-proof by this new process may also be made resistant to spotting, if desired, by subsequent treatment with a suitable water-repellent finish.

Rayon and Acetate Softener

A new softener, known as Nopco 2105, for acetate and rayon fabrics has been announced by National Oil Products Co., Harrison, N. J. It is stated that Nopco 2105 does not alter the shade of dyed material; that it is resistant to hard water, oxidation and rancidity; that it does not attack or weaken textile fabrics; that it dissolves completely in hot water and is easily applied; and that it is stable in acid, alkaline, or neutral solutions. Fabrics finished with this new product are said to be characterized by their pliability, sleekness, and softness.

Fabric Coating Material

Application of Koroseal, a synthetic elastic material, to cotton, wool, heavy silk, or heavy rayon has been announced recently by B. F. Goodrich Co., Akron, Ohio. Koroseal calendar-coated fabrics are frictioned on both sides and can be skim coated on one or both sides as desired. With few exceptions, Koroseal can be applied to fabrics in any pigmented color. It is stated that fabrics coated with Koroseal are waterproof; flame resisting; resistant to oil, grease, acids, alkalies, plating solutions, etc.; and can be cleaned easily with soap or water. A few of the uses suggested for Koroseal coated fabrics are aprons for laboratories, dairies, electroplating rooms; tarpaulins; sail covers; waterproof bags; water and oilproof coverings; window shades and corrosion-resisting coverings for metal structures.

NEW PUBLICATIONS

Proletarian Journey; by Fred E. Beal; Hilman Curl Inc., New York; Price $2.75.

Fred Erwin Beal, self-styled "trained destructionist," paved his own road for his famous proletarian journey. Without investigating the rewards of communism he adopted it; without knowing living conditions in Russia he preached of its utopianism. Once in Russia, hailed land of proletarian emancipation, he found that the blue-bird was back in the United States of America and the Soviet regime was simply a dictatorship over the proletariat.

This autobiography, written from Nowhere and interesting reading indeed, is certainly a bit warped in Mr. Beal's favor. Gastonia, for instance, does not click with facts as Gastonians know them, but the author could not have written otherwise without labeling his story confessional, and we must remember that he still faces a 20-year prison sentence in North Carolina. The distortion, in the Gastonia chapters, prejudices the reader in regard to later chapters, for we do not know how closely Beal has aligned the truth to fit his own needs. However, discounting certain portions which seem possibly exaggerated and keeping the proverbial saltcellar handy, one still finds the book completely fascinating and giving as good a picture as we have yet had as to the why of unions and unionisms and union organizers.

The Sharecropper; by Charlie May Simon; E. P. Dutton Co., New York. Price, $2.50.

Miss Simon, the author of several books for children, is hardly adult enough in giving her picture of the origin of and reason for the Arkansas tenant farmers union. In writing her story she forgets, too, that sharecropper as a collective name does not describe individual tenantry for she follows too closely the pattern set by similar stories of white tenant farming in the Deep South. In "The Sharecropper" all the familiar props are used: the flood, the boll weevil, the Simon Legree, as the financial struggles of Donie and Bill are revealed.

No fundamental economic reason for the necessity of sharecropping is given; no theory as to how it may successfully be abolished; no plan as to the perpetuation or strengthening of the farmers' union is offered. The story, which could have been most dramatic, dwindles out at the end for the author abandons her characters in a shanty camp where they are neither "croppers" nor vagrants.

There is a story of Deep South tenant farming, and economic reasons for and against. There is a story of the mushroom growth of the Southern Tenant Farmers Union and its portents toward the future south. There is a story about both but so far it has not been told.

Drawing Frames; by H. H. Willis and Vernette B. Moors; Textile Foundation, Washington, D. C.; multilithed copies obtainable from H. H. Willis, Clemson, S. C., at 50c.

And still they come. This is the third of the Textile Foundation's cotton-manufacturing books to be published within two months, and the fourth of the proposed sextuplet. While smaller than the others, because the subject treated is simpler, the new book is similar in form, character of information, and general excellence.

A.S.T.M. Standards on Textile Materials; prepared by Committee D-13 on Textile Materials, published by the American Society for Testing Materials, 260 S Broad St., Philadelphia, Pa.; $2.00.

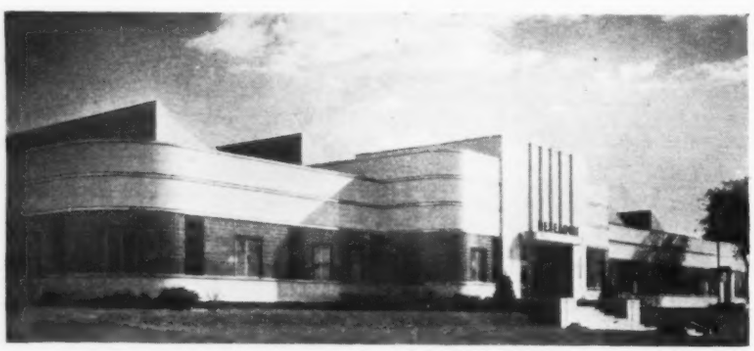
The 1937 edition of this book contains, in full, the 44 standards established to date by Committee D-13. As was the case in the 1936 edition, standards are so arranged that those of general application appear first, followed by those relating respectively to cotton, rayon, wool, asbestos and miscellaneous textiles.

In addition to these standards the volume contains a large number of photomicrographs of common textile fibers; yarn-number conversion tables, compiled by TEXTILE WORLD; a psychrometric table of relative humidity; a proposed method of correction of breaking strength to standard regain; a list of papers relating to textile materials appearing in the proceedings of the society; abstracts of papers presented before Committee D-13 during the last year; a listing of the personnel of the various sub-committees; and other interesting information.

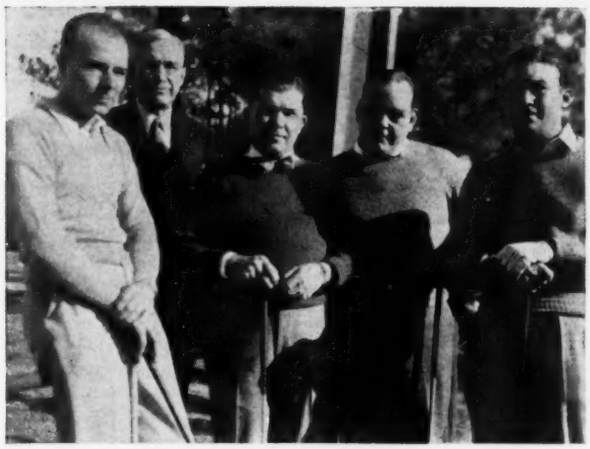
Highland Heritage; by Edwin E. White; Friendship Press, New York; Price, $1.00.

Mr. White, long a minister of the gospel in the southern regions of Appalachia, gives us a very complete social study of the people and their lives in this vast isolated region. The volume is of importance to textile executives in as much as it gives a clear and concise picture of the background in which the average southern textile worker was born and bred, where his ancestors lived shut apart from the rest of the world for generations.

Our present textile workers, for the most part, are only one generation removed from the region of Appalachia where tradition made pistols more important than schools; where the folks lived in complete isolation, lacking any sort of convenience; where the common problem of mountain agriculture was such a scarcity of arable land per farm



New research laboratories of American Rolling Mill Co., Middletown, Ohio, dedicated Nov. 5 in the presence of more than 200 scientists from all parts of the country. Combining enameled iron and stainless steel with porcelain and glass block in its exterior construction, the single-story research building typifies modern industrial design and the role of sheet iron and steel in its application to construction. Housed in the building are twelve laboratories with complete facilities for specialized research. They include equipment for setting up tests to determine and maintain the quality of all Armco products; welding methods with flat-rolled materials; forged-steel car wheels; stainless steel; development of corrosion-resistant sheets and strip; iron sheets for porcelain enameling; high-finished sheets for deep drawing; sheets for electrical uses; development of zinc and other metal coatings for sheets; development of non-metallic coatings and the improvement of surfaces to hold these coatings; also for blast furnace, open hearth, and electric furnace experiment.



CORN PRODUCTS CO. plays a foursome at Pinehurst during recent meeting of Cotton Manufacturers Association of North Carolina, with John White southern representative as referee; Left to right, W. F. Mueller, Mr. White, W. B. Joyner, A. A. Harden and T. A. Mott.

that families could hardly hope to secure a reasonable standard of living. To them even the lowest wage rates in the industrial sections counted into fabulous sums and they flocked in great numbers to the source of day wages.

However sub-standard the conditions of the mountain people have been, a great field is being opened for their benefit today, Mr. White points out, with the individually endowed schools, the great strides made in resettlement work by the U. S. Depts. of Agriculture and Interior, and the educational program sponsored by the TVA. Mr. White shows us that the mountain folk are not a different kind of people, but simply folk of old American stock, who were shut off from the rest of the country in pioneer days and have been pioneering ever since. Yet, they have preserved for us some of the finest of the handcrafts and purest folk-lore.

Mr. White gives us an able summation of the present conditions of Appalachia, but goes further than most when he presumes to step forward and point out the proper methods of making our highland heritage rich in reward with better rural life, health crusades and educational programs.

In order to better understand the southern industrial classes it is well to read this volume and absorb a bit of their ancestral background and present home prospects.

Proceedings Forty-First Annual Convention American Cotton Manufacturers Association. Published by The American Cotton Manufacturers Association, Charlotte, N. C.

This volume comprises reports, addresses, statistics and other vital data pertaining to the forty-first convention of the American Cotton Manufacturers Association which was held May 12-13 in Washington, D. C. It also includes membership lists and other association information.

A Selected List of References on the Chemical Testing of Textile Materials; American Home Economics Association, Washington, D. C., 40 c.

This list was prepared by the Committee on Textile Analysis of the Textiles and Clothing Division, American Home Economics Association, and the Bureau of Home Economics, U. S. Department of Agriculture. It contains references to articles on qualitative and quantitative chemical methods of testing textile materials published in English, German, and French from 1920 to 1937. Although the bibliography is intended primarily for use by instructors and students interested in textile research, it will prove of value also to mill chemists and others who have occasion to make textile analyses.

Attractive Clothes: How to Make, Buy and Wear Them; by Frances H. Consalus, chairman of Home Economics Department, Wadleigh High School, New York, and William H. Dooley, Principal of Straubenmuller Textile High School, New York; The Ronald Press Co., New York; Price, $2.40.

While addressed mainly to the consumer and the dress-making and retail trades, this volume has considerable interest for textile manufacturers, notably in its chapters on fabrics, characteristics of fabrics, finishes, colors, comparative study of fibers, etc.; then too the discussion of hosiery, pages 112 to 116, includes some apt analysis of what the consumer prefers in stocking styles. The whole subject of clothes is treated with an encyclopedic scope.

NEWS OF SUPPLIERS

• **Warwick Chemical Co.,** of West Warwick, R. I. and New York announces the purchase of a manufacturing property in Rock Hill, S. C., from the Highland Park Mfg. Co. Warwick will remodel and equip the plant with modern machinery for the manufacture of textile chemicals. The new plant will be known as Carolina Division and will be in charge of M. M. McCann, who for two years has been one of Warwick's Southern representatives, following his long connection with Burlington Mills.

• **E. F. Houghton & Co.,** Philadelphia, announces appointment of David Maitland Harvey, as superintendent of the oil department at the Philadelphia plant. Production of sulphonated oils, quench-

Improved Motor Assembly Methods

TO MEET an increasing demand for a-c. industrial motors, Westinghouse Electric & Mfg. Co. has recently completed a new "motor aisle" at its East Pittsburgh, Pa., plant. This permits all of the work involved in building motors to be concentrated in one area, on one floor level, and under one responsibility. A feature of the new layout is that two manufacturing lines have been set up—one consisting of special-purpose equipment for production of standard parts and motors; the other comprising general-purpose equipment for production of special and custom-built motors. The two lines are housed in one shop having a total floor area of 197,000 sq.ft.

Each of the two lines or aisles consists of unit manufacturing centers, which supply parts to sub-assembly and final-assembly centers. The layout has been planned to give a "straight-line" flow of work, with raw materials entering at one end of the building and finished motors leaving at the other end. Movement of raw materials, parts, and finished motors is accomplished largely by use of gravity roll conveyors, supplemented, when necessary, by power-driven booster belts, live-roll conveyors, overhead chain conveyors, and cab-operated cranes.

At a preview of the new motor aisle, held Nov. 10, for representatives of business and technical publications, R. W. Owens, manager of the motor division of the Westinghouse company, stated that over a period of years use of electric motors has steadily increased. At the same time, the number of industrial motors produced has increased at a much more rapid rate than their unit value; that is, due to a decrease in line-shaft drives and the increase in individ-

Section of new motor aisle recently completed by Westinghouse Electric & Mfg. Co. at East Pittsburgh, Pa., showing conveyor lines for dispatching rotors and stators to assembly department.

ual drives, the trend has been toward the use of a greater number of smaller motors, rather than toward a fewer number of larger motors. Another trend is toward the use of a number of smaller motors, each driving a separate motion on a machine, rather than the use of a single motor driving all motions through mechanical transmission devices. Major objectives of Westinghouse in building the new shop were to permit use of the most up-to-date and economical methods and processes for producing the various types of industrial motors now manufactured, to provide for expansion to meet any further increase in demands, and to give the flexibility needed to incorporate improved methods as they are developed in the future.

ing oils, extreme pressure lubricants, and oils for metal working, textile, cordage, and fibre industries, will be under his direction.

• **Monsanto Chemical Co.**, St. Louis, won the 1937 "Award for Chemical Engineering Achievement." This award was instituted by *Chemical & Metallurgical Engineering* in 1933 to stimulate a broader participation of chemical engineers in the affairs of industry. The name of the winner was announced by the Committee of Award. In making the 1937 Award, consideration was given primarily to the successful design, construction and operation of the new phosphorus producing plant built by Monsanto this year at Monsanto, Tenn., near Columbia, Tenn.

• **National Oil Products Co.**, Harrison, N. J., announces that H. J. Waldron, formerly associated with leading textile manufacturers in New England and Southern states, has been appointed New England district sales manager.

• **Steel Heddle Mfg. Co.**, Philadelphia, Pa., has taken over the business of Atlanta (Ga.) Harness & Reed Co., 268 McDonough Blvd., in which it acquired a large interest two years ago. The latter name will cease to be used after Dec. 31 and the business will go forward as the Atlanta Division of Steel Heddle Mfg. Co., which firm also has plants in Greenville, S. C. and Montreal, Canada. Equipment at Atlanta has been modernized and an ample stock of heddles and other sundries will be carried. H. Raiford Gaffney, acting district manager, has been appointed director of sales, Atlanta Division. Guy P. Carmichael will be office manager; Samuel Floyd, shop superintendent, Ralph Ragan, in charge of twister ring division. John J. Kaufman, Jr., assistant vice-president of the parent company, will have general supervision of the Atlanta Division.

• **Pennsylvania Salt Mfg. Co.**, Philadelphia, announces that Charles B. Griffin, Jr., formerly of the Marshall Field & Co.'s Manufacturing Division, has recently joined the company's technical service department. He has been associated with Marshall Field for the last four years, working principally in their Textile Manufacturing Division on water purification, bleaching, and finishing.

• **Calco Chemical Co.**, Inc., Bound Brook, N. J., announces that their new film "Beyond the Rainbow" is now available for private showings. This film, which tells the story of the dye industry, is unusual because it is the first time that sound has been used on 16mm. color film.

• **Morse Chain Co.** announces extensive installation of new equipment at the plants in Ithaca, N. Y. and Detroit. With a score of new machine tools set up in operation, production facilities and capacities have been materially stepped up.

• **Lamb Knitting Machine Co.**, Chicopee Falls, Mass., executives and others recently honored Frank D. Howard, former executive of the Lamb company, and for many years president of the Knitting Machine Manufacturers Association, who was guest at a party in honor of his 80th birthday anniversary, at Hotel Stonehaven, Springfield, Mass.

• **Draper Corp.**, Hopedale, Mass., announced Nov. 24 that 2,500 employees would receive bonuses ranging from $20 to $50 as Christmas gifts from the corporation this year. More than 500 employes in plants at Beebe River, N. H.; Atlanta, Ga. and Spartanburg, S. C., will receive similar bonuses.

• **Stein-Brill Corp.**, of New York City, announce a change in the corporate name to the Brill Equipment Corp. There will be no change in management.

• **George E. Sherman Co.**, Brooklyn, N. Y., distributors and manufacturers of textile oils, soaps and chlorine bleach, have established a manufacturing plant and warehouse at High Point, N. C.

• **Synthetic Resin Manufacturers Association** has appointed Foster D. Snell, Inc., consulting chemists and chemical engineers, to act as official laboratory of the association.

Textile World Analyst

Textile mill activity in October—the last month for which final statistics are available at this writing—reflected for the first time the sharp recession in forward business which has set in generally. TEXTILE WORLD's index for that month was 25% below the corresponding month last year. However, it was only 5% below October of a so-called "normal" year (1924-31 average.) . . . . The unusually high production in textile mills during the first part of the year is responsible for the fact that, despite this later decline, the activity for the first 10 months of 1937 was 10% *above* that for the corresponding period of last year—and 30% above that part of a "normal" year. It seems likely that 1937 will close with a total activity approximately equal to 1936, and therefore well over that of a "normal" year. . . . . Carded yarn and fabric manufacturing margins continued their decline during November (Tables I and II). . . . . All of TEXTILE WORLD's price index numbers, except that for rayon yarn, declined during November.

Textile World's Price Index Numbers

STARTING with January, 1936, TEXTILE WORLD has revised its price index numbers to a 1923-25 base, to correspond with current statistical practices. Figures on cotton manufactures, Aug. 1, 1933 to Jan. 6, 1936 include processing tax.

Date	Cotton Index Numbers: Cotton	Yarns	Gray	Colored	Wool Index Numbers: Wool	Tops	Yarns	Cloth	Silk Index Raw-Silk	Rayon Index
1923-25	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
1930 ave.	50	61	61	72	58	61	72	90	109	46
1931 ave.	32	68	46	59	46	49	59	71	32	32
1932 ave.	24	37	37	60	36	40	52	57	21	28
1933 ave.	39	56	55	50	53	59	62	80	21	26
1934 ave.	61	67	70	62	63	70	75	91	17	25
1935 ave.	60	68	67	69	56	58	70	88	22	24
1936 ave.	**45**	**63**	**63**	**68**	**72**	**78**	**76**	**93**	**23**	**25**
Jan. 1936	48	67	63	68	67	73	75	93	26	24
Feb. 1936	42	62	58	67	72	81	77	93	24	24
Mar. 1936	42	61	57	66	73	81	77	93	23	24
Apr. 1936	43	60	55	64	68	75	76	90	22	24
May 1936	43	57	54	64	67	75	76	90	21	24
June 1936	44	58	57	65	67	75	76	90	20	25
July 1936	48	61	61	70	69	75	75	90	22	26
Aug. 1936	45	62	63	70	70	75	74	90	23	26
Sept. 1936	45	62	63	70	70	75	74	90	22	26
Oct. 1936	45	64	67	71	71	75	74	92	23	26
Nov. 1936	45	65	74	72	78	82	76	100	26	26
Dec. 1936	48	72	80	74	87	90	84	105	26	26
Jan. 1937	48	73	81	76	90	93	88	108	27	26
Feb. 1937	48	74	78	76	90	92	90	108	27	26
Mar. 1937	53	78	80	78	87	88	90	112	27	26
Apr. 1937	53	80	82	80	84	86	90	112	27	27
May 1937	49	75	76	78	82	84	89	112	24	27
June 1937	47	70	71	78	78	82	88	112	25	27
July 1937	45	65	67	78	78	82	88	112	26	27
Aug. 1937	37	59	62	78	80	82	88	112	25	27
Sept. 1937	33	54	56	73	78	81	87	107	25	27
Oct. 1937	31	51	53	67	73	76	82	100	23	27
Nov. 1937	29	48	50	61	66	68	74	97	22	27

Fabric and yarn manufacturing margins follow:

TABLE I. CARDED FABRIC MARGIN

Date	Margin in cents	Date	Margin in cents
August, 1933	21.4	March, 1936	15.5
October, 1933	19.1	April, 1936	14.3
January, 1934	18.4	May, 1936	14.3
April, 1934	17.6	June, 1936	15.3
July, 1934	15.5	July, 1936	16.9
August, 1934	16.6	August, 1936	18.0
September, 1934	18.6	September, 1936	18.4
October, 1934	17.4	October, 1936	21.2
November, 1934	15.8	November, 1936	25.4
December, 1934	16.2	December, 1936	28.1
January, 1935	16.2	January, 1937	28.6
February, 1935	16.0	February, 1937	26.2
March, 1935	15.9	March, 1937	25.6
April, 1935	16.1	May, 1937	23.1
May, 1935	16.0	June, 1937	21.2
June, 1935	16.5	July, 1937	20.1
July, 1935	15.2	August, 1937	19.4
August, 1935	17.1	September, 1937	18.1
September, 1935	17.9	October, 1937	17.3
October, 1935	17.7	November, 1937	16.9
November, 1935	16.4	Nov. 3	18.2
December, 1935	16.2	Nov. 10	17.2
January, 1936	17.2	Nov. 17	17.2
February, 1936	16.5	Nov. 24	16.3
		Nov. 30	15.7

TABLE II. CARDED YARN MARGIN

Date	Margin in cents	Date	Margin in cents
August, 1933	23.5	April, 1936	15.6
October, 1933	20.0	May, 1936	14.8
January, 1934	18.3	June, 1936	14.6
April, 1934	15.9	July, 1936	15.0
July, 1934	14.6	August, 1936	16.5
August, 1934	15.3	September, 1936	16.5
September, 1934	15.6	October, 1936	17.2
October, 1934	14.6	November, 1936	18.0
November, 1934	13.3	December, 1936	20.6
December, 1934	13.5	January, 1937	20.8
January, 1935	13.5	February, 1937	21.2
February, 1935	13.9	March, 1937	21.3
March, 1935	14.4	April, 1937	22.6
April, 1935	14.1	May, 1937	21.2
May, 1935	13.8	June, 1937	19.3
June, 1935	14.5	July, 1937	17.8
July, 1935	14.3	August, 1937	17.2
August, 1935	15.3	September, 1937	16.1
September, 1935	15.4	October, 1937	15.3
October, 1935	15.8	November, 1937	14.7
November, 1935	16.3	Nov. 3	15.0
December, 1935	16.3	Nov. 10	14.8
January, 1936	18.4	Nov. 17	14.9
February, 1936	17.5	Nov. 24	14.7
March, 1936	16.3	Nov. 30	14.2

The Personal Page

G. H. Conze, executive vice-president of Susquehanna Silk Mills, New York, has been elected president of that company, succeeding **Wm. M. Vermilye,** who has accepted post as vice-president of the National City Bank, New York. Mr. Vermilye resigned both as president and board chairman of Susquehanna, but remains as board member and as member of the executive committee. Mr. Conze, who is also president of the National Federation of Textiles, has been with Susquehanna since 1909. **W. D. Carter** and **F. Kloechener** also were elected vice-presidents.

E. Martin Philippi, vice-president and director of American Thread Co., New York, has been elected president to succeed **R. C. Kerr.**

Wm. H. Gosch, president of Nolde & Horst Sales Co., New York, and president of the National Association of Hosiery Manufacturers, has been elected a member of the executive council of the Men's Apparel Quality Guild, New York.

G. H. Tullis, of New Orleans, La., has been nominated for president of the New Orleans Cotton Exchange to succeed **Chas. Fenner,** and **C. W. Bouden** has been nominated for vice-president and **C. C. Hightower** for treasurer.

Matthew W. Ryan announced last month that the firm of Matthew W. Ryan Sons, New York, had become associated with Taylor, Clapp & Beall, New York, as a department featuring cotton dress goods.

Elmer L. Ward, president of Goodall Co., Sanford, Me., has been elected president of the Bocalav Co., Inc., New York, manufacturers of a new mouthwash product.

Arthur Silbermann, senior partner of Wm. Openhym & Sons, New York, announced recently that he would retire, and it was later stated plans were shaping for a reorganization of the company.

B. H. Brown, vice-president of Cowpens Mfg. Co., Spartanburg, S. C., is acting president of the firm, following the recent death of Hiram W. Kirby.

Roy E. Tilles, president of Gotham Silk Hosiery Co., New York, who recently was injured in an automobile accident, is now recovering and has taken a convalescent trip south.

T. Wilde, president of American Hair & Felt Co., New York, has resigned that post and will establish a general brokerage business in foreign and domestic animal hair. Temporary offices are at 220 Broadway, New York.

Albert L. Scott, president Lockwood, Greene Engineers, Inc., New York, has been elected secretary of the corporation of Brown University.

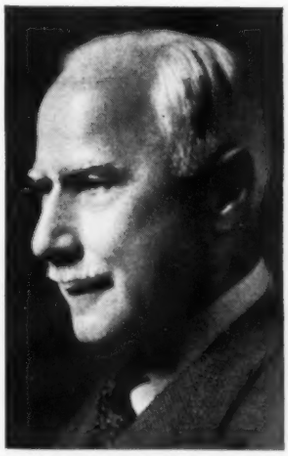
Fred W. Steele, general manager of Pierce Bros., Ltd., New Bedford, Mass., and chairman of the legislative committee of the National Association of Cotton Manufacturers, spoke over the radio in New Bedford Oct. 27. Mr. Steele discussed "Unemployment Conditions in New Bedford."

J. A. Goodman has become president of National Silk Hosiery Mills, Indianapolis; **L. L. Goodman,** is treasurer and **H. V. Kobin** is vice president. **A. J. Barskin** remains as secretary. **J. A. Goodman** and **L. L. Goodman,** were formerly chairman of the board and treasurer respectively, of the Real Silk Hosiery Mills, Indianapolis.

William Stewart, treasurer of Southeastern Cottons, Inc., New York, has been elected executive vice-president of the corporation, and will hold both offices.

John Skinner, treasurer of Otis Co., since July 1, has been elected president in place of **Henry G. Nichols,** who resigned last summer to become a vice-president of the Pacific Mills, Lawrence, Mass. Mr. Nichols continues on the Otis directorate.

Frank G. Ahern, Norwich, Conn., is president of the recently organized Griswold Textile Print Co., Anthony St., Jewett City, Conn. **Mary F. Ahern** is vice-president and **James A. Blair,** secretary.



E. Martin Philippi, elected president of American Thread Co.

Leroy Springs, grandson of the late Col. Leroy Springs, the founder of Springs Cotton Mills, Lancaster, S. C., helped to honor his grandfather at a memorial program of the Springs Civic League of Lancaster recently. Leroy, son of Capt. Elliott White Springs, president of the Springs Cotton Mills, planted a memorial tree. Representatives of each of the eight wards of the city then placed a shovel of dirt, and the Rev. W. S. Patterson, of Lancaster, delivered an address upon the life and work of the textile leader.

J. J. Abbott, for some years manager of Ware Shoals (S. C.) Department Store has accepted a position with Thoe Stiver's Milling Co., of Rome, Ga.

Miss Charlotte Hughes, formerly with Bonwit Teller & Co., New York, has been appointed promotion director for Schwarzenbach Huber Co., New York.

G. M. Elliott recently celebrated his

G. H. Conze elected president of Susquehanna Silk Mills

30th anniversary as a member of the sales staff of Southeastern Cottons, Inc., New York. His associates marked the occasion by presenting him with a gold watch.

T. B. Nilsen, of Mishawaka, Ind., has obtained controlling interest in Clinton (Mich.) Woolen Mfg. Co., and will become vice-president and assume active management at once.

W. A. Broadfoot, for some years associated with Aspinook Co., Jewett City, Conn., has become president of Palmetto Print Works, Greenville, S. C.

J. L. Palmer has been appointed director of sales promotion and research for Marshall Field & Co., New York.

Harold Thomas, Centaur Co. was elected chairman of the board of the Association of National Advertisers, last month at the annual meeting at Hot Springs, Va. Speakers at the meeting included **Gordon E. Cole,** advertising manager of Cannon Mills, and **B. C. Duffy,** Batten, Barton, Durstine & Osborn, Inc.

Leonard Croker has been made New York sales representative for Waltham (Mass.) Bleachery & Dye Works.

M. W. Winkler has become president of Blue Ridge Textile Co., with plant at Bangor, Me., which will make glove silk fabrics for the underwear and glove trade.

Lew Hahn has been named general manager and treasurer of National Retail Dry Goods Association, New York.

David Thomas has joined the print fabrics department of Chopak Textile Co., New York, as stylist. He was formerly with C. K. Eagle & Co., New York.

Harry E. Hayes, East Brookfield, Mass., has transferred to Stafford Springs, Conn., to assume the position of overseer of finishing for Swift River Woolen Mills.

W. F. Macia has joined the technical department of A. M. Tenney Associates, New York. Mr. Macia served as research fellow in the recent rayon crepe research conducted by the American Association of Textile Chemists & Colorists, Throwsters Institute and the Textile Foundation.

W. J. Cregan has resigned as superintendent of Ware Valley Mfg. Co., Ware, Mass., to become assistant to the vice-president of Munsingwear Corp., Minneapolis, Minn.

Ralph Hunter, who has been presi-

dent of Hall-Hartwell & Co., New York, has resigned that post to become associated in a selling capacity with Taylor, Clapp & Beall, cotton goods, New York.

J. J. Barnhardt, vice-president of Cannon Mills Co., Kannapolis, N. C., was elected president of the Carolinas-Virginia Purchasing Agents' Association at its annual convention held recently at the Charlotte (N. C.) Hotel.

R. E. Henry, president and treasurer of Duncan Mills, Greenville, S. C., was elected chairman of the board of the National Rayon Weavers' Association at the fifth annual meeting held a short time ago in New York. Southern mill men elected to the board of directors included: **C. E. Neisler, Jr.,** president, Neisler Mills, Inc., Kings Mountain, N. C.; **J. D. Pell,** secretary, Angle Silk Mills, Inc., Rocky Mount, Va.; **J. T. Wardlaw,** treasurer, Drayton Mills, Spartanburg, S. C.; **Lynn B. Williamson,** president, E. M. Holt Plaid Mills, Inc., Burlington, N. C.; **George M. Wright,** president, Republic Cotton Mills, Great Falls, S. C.; **John Killars, Jr.,** vice-president and treasurer, Judson Mills, Greenville, S. C.

W. A. Broadfoot recently succeeded **Philip A. Johnson** as president of Palmetto Print Works, Greenville, S. C.

Willys H. Taylor, formerly manager of S. Slater & Sons, Inc., Slater, S. C., has been appointed general manager of Appleton Co., Anderson, S. C.

C. F. Tourtellot, formerly general manager of the Renfrew, S. C., branch of Brandon Corp., has resigned to become assistant treasurer of Merrimack Mfg. Co., Boston, with plants at Huntsville, Ala., and Lowell, Mass.

Southern textile executives elected to the board of directors of the Southern States Industrial Council at the fifth annual meeting held at Nashville, Tenn., last month, included: **J. F. Ames,** president Selma Mfg. Co., Birmingham, Ala.; **Paul A. Redmond,** president, Alabama Mills, Inc., Birmingham; **L. L. Jones,** vice-president and general manager, Canton (Ga.) Cotton Mills; **H. M. McCulloch,** secretary, Peerless Woolen Mills, Rossville, Ga.; **Charles A. Cannon,** president, Cannon Mills Co., Concord, N. C.; **E. J. McMillan,** president, Standard Knitting Mills, Knoxville, Tenn.; **H. B. McCormac,** president, Virginia Woolen Co., Winchester, Va.; and **Albert T. Clifton,** president, Clifton Mfg. Co., Waco, Tex.

James Fraser has become overseer of weaving at Sawyer Mills of American Woolen Co., Dover, N. H.

Professors T. A. Campbell, W. L. Hicks and **J. V. Waters** have been added to the teaching staff of Clemson (S. C.) College Textile School, it is announced. Staff was increased to handle the 33% increase in enrollment.

J. E. Hatt, general manager of the cellophane division of the E. I. du Pont de Nemours & Co., Wilmington, Del.; **C. M. Switzer,** director of production, and **O. F. Benz,** sales director, all of Wilmington, were guests of honor at a dinner meeting of supervisors of the du Pont Ampthill cellophane factory recently.

"TEXTILE PERSONALITIES"

Richard C. Thatcher

THE Thatcher family has long been known in the textile industry for its Quaker philosophy of tolerance and understanding as well as for its business ability, and one feels after talking with Richard C. Thatcher, president of Standard-Coosa-Thatcher Co., Chattanooga, Tenn., that the present generation is no exception to the rule. Trained as an engineer at Swarthmore College, Mr. Thatcher decided shortly after graduation that textiles offered him a better future than engineering. After arriving at this decision, he went to England and spent eleven months observing how the English made cotton into yarn and cloth. Young "Dick" then returned to America and took a job with Standard Hosiery Mills, Philadelphia. Later he became superintendent of a small mill at Chester, Pa., now out of existence.

Some years before, his father, the late Albert G. Thatcher, had seen industrial possibilities in the South and had backed his views with a combed-yarn mill at Piedmont, Ala. Richard Thatcher, by this time having accumulated considerable manufacturing experience, was put in charge of the Piedmont plant. He was very successful in his new location, and later became secretary and superintendent of Coosa Mfg. Co., also organized and operated by his father. In 1922 three mills founded by Albert Thatcher — Standard, Coosa and Thatcher—were consolidated into the present Standard-Coosa-Thatcher Co. Richard Thatcher was made general manager, and became president in 1933 following the death of his father in 1928.

O. W. Howland, who has been an official of Phoenix Woolen Mills, Statesville, N. C., has resigned and is now making his home with his daughter in Washington, D. C.

W. O. Rivenbark, formerly with Rowan Mills, Salisbury, N. C., is now overseer of carding at High Point (N. C.) Spinning Co.

W. K. Mauney, secretary and treasurer of Bonnie Cotton Mill and Mauney Mills, Inc., Kings Mountain, N. C., has been elected vice-president of Lenoir Rhyne College, and **Carl V. Cline,** president of the Hickory (N. C.) Knitting Mills, Inc., has been elected treasurer of the college.

Charles H. Bacon, president of Charles H. Bacon Hosiery Mills of Lenoir City, Tenn., and Loudon, Tenn., has been presented with a commission as colonel on Governor Browning's staff.

T. A. Wilson, Raleigh, N. C., chairman of the North Carolina Industrial Commission, has been elected a member of the executive committee of the National Safety Council; as chairman of the Textile Section of the Council, he will represent that division at the monthly meetings of the executive committee.

J. W. Norman has been appointed overseer of twisting at the Milstead, Ga., unit of Callaway Mills, in addition to his regular duties of overseer of beaming, quilling and weaving.

L. A. Partain, formerly with plant No. 4 of Georgia-Kincaid Mills, Griffin, Ga. has been transferred to superintendent of the mechanical department of unit No. 2 of the same company.

W. J. Bieberle has been appointed Philadelphia representative of the Oscar Heineman Corp., Chicago, raw and thrown silk, effective May 1. He succeeds **William J. Crummer,** resigned.

J. J. Abbott, for several years general superintendent of various auxiliary departments of Ware Shoals (S. C.) Mfg. Co., has resigned to accept a position with Theo Stiver's Mills Co., Rome, Ga.

Joe Porter, Jr., Rockmart, Ga., has accepted the position of head of the carding and spinning rooms of Danville (Va.) Textile School.

Arthur Wheatley is now connected with Putnam Finishing Co., Mechanicsville, Conn., as overseer of dyeing.

William T. Brosnan, formerly connected with the dyeing in the lining division of Bradford Dyeing Association, is now superintending dyeing of Farr Alpaca Co., Holyoke, Mass.

E. A. Wilkinson, formerly with Darlington Fabrics Corp., Newton, N. J., is now overseer of dyeing for Providence Dyeing, Bleaching & Calendering Co., Providence, R. I.

M. C. Atkinson is now overseer of the cloth room at Central (S. C.) Mills, having been promoted to this position.

H. H. Spray has become overseer of carding at Jefferson (Ga.) Mills, No. 1.

C. O. Cronic is now overseer of weaving at the Hillside unit of Callaway Mills, LaGrange, Ga. He was formerly of Manchester, Ga.

Lewis L. Bowen has been promoted to assistant superintendent of Roanoke (Va.) Weaving Mill.

F. S. Pritchard, formerly of High Point, N. C., has accepted position with the dyeing department of Brown Mill, Concord, N. C.

P. Warren is the new superintendent of Cascade Rayon Mills at Mooresville, N. C. He succeeds **B. A. Stansell,** who resigned to accept a position at Greer, S. C.

J. A. White has assumed his new duties as general manager of Slater (S. C.)

Mfg. Co. He was formerly superintendent of Cleveland Cloth Mills at Shelby, N. C.

W. R. Odell, treasurer of Kerr Bleaching & Finishing Works, of Concord, N. C. and also president of the J. M. Odell Mfg. Co., at Bynum, N. C., has completed 50 years service as a member of the board of directors of Duke University.

Harry Glenn, Jr., shift foreman at Bibb Mfg. Co., Macon, Ga., Payne plant, has been promoted to the cloth department at the general offices.

J. D. Green has become superintendent of Lancaster (S. C.) plant of the Springs Cotton Mill.

James Conway, secretary and member of the board of directors of the National Silk Spinning Co., who has been in charge of the plant in New Bedford, Mass., has returned to the New York office of the corporation. The management of the New Bedford plant now is in charge of **George Manton.**

Robert Welsh has accepted a position as superintendent of finishing in Wood Mill of American Woolen Co., Lawrence, Mass. He has been representing James Hunter Machine Co.

Charles B. Rapp, who has specialized for the last ten years in the sale of knitting yarns, especially dyed yarns, has become associated with Waterman, Currier & Co., and will cover the trade in eastern Pennsylvania, Maryland and Virginia for this concern.

G. A. Barnes, formerly assistant overseer of spinning at Thomaston (Ga.) Cotton Mills, is now overseer of spinning at Griffin (Ga.) Mills.

L. A. Partain has become superintendent of the mechanical department of Mill No. 2, Georgia-Kincaid Mills, Griffin, Ga.

M. L. Mobley, formerly cashier of the Milstead, Ga., unit of Callaway Mills, has been transferred to the general offices at LaGrange, Ga.

Callaway Mills, Milstead, Ga., report the following changes among the overseers: **C. R. Wilkerson** has resigned as overseer of carding. **W. H. Mathis** is now overseer of carding, spinning, and spooling, with **E. S. Black** as assistant overseer. **J. W. Norman** now serves as overseer of twisting, beaming, quilling, and weaving. **J. M. Herndon** has been promoted from second hand of twisting to assistant overseer of twisting and beaming.

W. B. Shannon has assumed his new duties as superintendent of the spinning division of Mill No. 3, Highland Park Mfg. Co., Charlotte, N. C. He was formerly superintendent of the weaving division of Carolina Cotton & Woolen Mills at Leaksville, N. C.

S. C. Farr has become superintendent of Bamberg (S. C.) plant of the Santee Cotton Mills.

J. A. Baught is the new superintendent of the Orangeburg (S. C.) plant of Santee Cotton Mills. He succeeds **J. D. Green,** who resigned recently.

J. Lamar Moore, who has been general night foreman at Manchester, Ga., plant of Callaway Mills, has been promoted to day overseer of weaving.

J. L. Branson, formerly overseer of No. 3 carding and spinning at Mooresville (N. C.) Cotton Mills, has moved to Durham, N. C.

John Cameron, formerly overseer of weaving at Peerless Cotton Mills, Thomaston, Ga., now holds a similar position with Thomaston Cotton Mills.

Albert J. Malley, overseer wet and dry finishing department, Arlington Mills, Lawrence, Mass, has been elected a trustee of the Lowell Textile Institute.

Obituary

James O. McKinsey, aged 47, chairman of the board of Marshall Field & Co., Chicago, died Nov. 30, in Chicago. When professor of business policies at the University of Chicago, he turned to the management counsel field and in 1925 formed James O. McKinsey & Co. Elected chairman of Marshall Field & Co. in 1935, he abolished the firm's extensive jobbing business because it was unprofitable and reorganized both the manufacturing and distributing divisions along modern lines. He maintained close contact with the textile industry.

James O. McKinsey

S. Harold Greene, aged 57, president, Lockwood Greene Managers, Inc., Boston, died Nov. 26. He was treasurer, Lawton Mills Corp., Plainfield, Conn., 1907-1930, and formerly was chairman of Cosmos Imperial Mills, Hamilton, Ont. His prime interest was successful personnel building in both the executive and operating ranks of his companies.

John Voegelin, aged 54, pioneer rayon sales executive and formerly assistant sales manager of the American Viscose Corp., New York, died Nov. 23 at his home in Boonton, N. J. Mr. Voegelin entered the rayon industry about 1909 when he became associated with the rayon yarn import firm operated by Samuel A. Salvage, now chairman of the American Viscose Corp.

Francis P. Garvan, aged 62, creator and president of the Chemical Foundation, Inc., and president of the U. S. Institute for Textile Research, died Nov. 7 at his home in New York. His career included service as Alien Property Custodian and Assistant Attorney General under Attorney General A. Mitchel Palmer.

Sidney H. Hamrick, aged 90, died recently at Shelby, N. C., after ten days' illness. For many years he was president of Ella Cotton Mills, but retired from business about ten years ago. Mr. Hamrick served with the Confederate army in the Civil War, having joined a troop of 17-year-old boys toward the close of the conflict.

W. T. Lane, founder of W. T. Lane & Bros., canvas basket manufacturers, Poughkeepsie, N. Y., and co-inventor of the round-steel frame canvas basket, died recently in Poughkeepsie, N. Y.

I. H. Barbee, manager of the Atlanta, Ga., plant of Link-Belt Co., died Nov. 4 in Philadelphia. He was associated with Link-Belt for 25 years.

Geo. Wm. Ellis, aged 54, vice-president and assistant treasurer of A. D. Ellis Mills, Monson, Mass., died recently at his home there.

Percy C. Brooks, aged 65, former executive vice-president of Fairbanks Morse & Co., Chicago, Ill., died recently in Chicago. He was 40 years with Fairbanks, Morse & Co.

William J. Hines, aged 67, Thompsonville, Conn., chief wool buyer for Bigelow-Sanford Carpet Co., died recently. Mr. Hines began with the company 52 years ago and was head of the wool buying department for 35 years.

Wm. L. Hayward, aged 52, partner of W. A. Schuster in Schuster Woolen Co., East Douglas, Mass., died Dec. 4 in Franklin, Mass. He was also president, Hayward Woolen Co., Franklin, and Manchug (Mass.) Mills.

Frederic Cameron Church, aged 80, president of Middlesex Co., Lowell, Mass., director of Bobbin & Shuttle Co., Lawrence, Mass., and of Continental Mills, Lewiston, Me., died at his home in Lowell on Oct. 16.

Paul F. Haddock, southern manager, American Cyanimid & Chemical Co., Charlotte, N. C., died Dec. 5.

Hiram W. Kirby, aged 62, president of Cowpens (S. C.) Mfg. Co., died recently.

Jason Kidder, aged 74, founder of Kidder Machine Co. in Franklin, N. H., died in Franklin Hospital recently.

Walter S. Lawson, aged 69, at one time president Charles River (Mass.) Bleachery & Dye Works, died recently at Lyman, S. C.

Charles B. Chase, aged 58, former superintendent of Samoset Mills, Valley Falls, R. I., for 25 years general manager of Stevens Mfg. Co., Burlington, S. C., and recently president of C. B. Chase Textile Co., Fall River, Mass., died in that city Oct. 22.

Thomas H. Barden, aged 80, treasurer and manager of Amherst (Mass.) Mfg. Co., died recently.

Charles Frederick Bobo, aged 64, for a number of years associated with Brookside Textile Mills, Knoxville, Tenn., died recently.

Edward J. Sullivan died recently in Providence Hospital, Holyoke, Mass., after a short illness. For 48 years he was with Farr Alpaca Co., being master mechanic for 30 years.

Cotton Digest

ANNOUNCEMENT that 42 salt producers plan to switch from cotton and burlap bags to paper bags for shipment to the manufacturing trade came as a jolt to manufacturers of cotton bags. In fact, the shock is broader than that, since it was new evidence of the bitter fight between cotton and paper . . . Textile men should not blind themselves to the fact that the paper industry has been doing a swell merchandising job. Just as one example, this writer's house has recently been bombarded by a personal sales campaign of a paper products company which has everything to sell in the form of paper, many being direct competitors with cotton. The appeal to the housewife is a strong one. We recall no similar effort in cotton products for the home. . . . The cooperative promotional job is not enough. A merchandising tie-in on the part of individual mills and selling companies is essential if paper is not to "win the war." —*Editor.*

Alabama Mills Advertise—A series of advertisements telling the story of the cotton mills in Alabama have been inaugurated by the Cotton Manufacturers Association of Alabama. Facts, such as wages paid employees, amount of cotton consumed, etc., will be stressed.

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Foreign Trade—The United States during September imported for consumption 197,768 sq. yd. unbleached goods valued at $48,259, 2,891,230 sq. yd. bleached goods valued at $226,800, 2,471,185 sq. yd. printed, dyed or colored goods valued at $419,126, 778 sq. yd. cotton floor coverings valued at $372,-047, and 324,518 sq. yd. velvets and velveteens valued at $69,575.

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Report on Tire Cord—The tire-cord industry used about 8% of the total domestic consumption of cotton during the last 16 or 17 years, according to a recent report issued by the Bureau of Agricultural Economics. This report is 20th of a series relating to the utilization of American cotton. R. J. Cheatham and A. Mason Dupre, Jr., are authors.

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Process-Tax Clause Recommended—The Industry Committee of the Association of Cotton Textile Merchants of New York recently recommended adoption of a clause on orders for future delivery which will take into consideration any processing tax which might be enacted by Congress. This is in addition to the wage-and-hour clause recommended in 1936 and the Supplementary Casualty Clause recommended in March, 1937.

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Markets Continue to Slide—The resistance which developed in some branches of cotton gray-goods market in October turned out to be a joker as prices sank sharply in November, especially in print cloths. Key constructions lost at least ⅝c. during the month. Stock market conditions, steel production, mill production, stock accumulation, and other factors were blamed for the slump, but realistic observers say that the basic reason is the headlong operation of several months ago. The cotton-yarn market was slow also, with sales and shipments the poorest for the year. Price concessions did not seem to stimulate orders.

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Jute Tariff Amendment—The jute tariff committee of the American Cotton Manufacturers Association recently prepared an amendment for submission to the agricultural committee of the Senate and House. An effort is being made to limit the imports of jute to 65% of the average amount brought into the U. S. between 1931 and 1935, inclusive.

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Carded Yarn Annual Meet—The annual meeting of the Carded Yarn Group of the Cotton Textile Institute is scheduled to be held Dec. 18 at Charlotte, N. C. Speakers will include Dr. Claudius T. Murchison, president of the Cotton-Textile Institute, and B. B. Gossett, president of Gossett Mills and Chadwick-Hoskins Co. Don P. Johnston, of Wake Forest, N. C., chairman of the group, will preside. Election of officers will take place, and there will be a discussion of the proposed uniform sales contract which carded and combed spinners have been working on for some time.

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Government Buys Cloth—Large purchases of cotton textiles for WPA work rooms were made by the Government last month. Bids for 13,178,400 yd. were placed Nov. 26. It was rumored that the Navy would advance the date of its spring purchases of textiles. Annual volume of purchases of textiles by WPA is from 125,000,000 to 150,000,000 yd.

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Japanese Imports Rise—Imports of cotton cloth from Japan during the first nine months of the year totaled 98,940,000 sq. yd. valued at $5,022,000, nearly double the amount imported during the same period last year.

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International Cotton Statistics—Total world mill consumption of cotton for the year ended July 31, 1937, was estimated to be 29,026,000 bales, according to a preliminary report of the Federation of Master Cotton Spinners and Manufacturers Association. This is 3,637,000 bales greater than for the previous year. It is pointed out that the total includes only estimates for Russia and Spain, and that the Italian association was precluded. The 1936 figures were exclusive of Germany—which consumed 541,000 bales in 1937.

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Key Cotton Prices with usual comparisons follow:

	Dec. 1, 1937	Nov. 1, 1937	Dec. 1, 1936	Dec. 2 1935
Spot Cotton, N. Y.	8.00	8.03	12.58	12.15
Ditto, high previous month	8.22	8.78	12.43	12.45
Ditto, low previous month	7.79	8.05	12.08	11.35
10s hosiery cones	18½	19	28½	30
10s/2 carded skeins	18½	19½	28½	30
20s/2 carded peeler warps	21	22	32½	33
60s/2 combed peeler warps	48½	49	60	59
60s/2 mercerized cones	63	65	72	72
37-in., 3-yd., drill	7	7½	9½	9 5/16
38½-in. 64 x 60s	4½	5½	7 7/16	6 7/16
36-in. 4-yd. 56 x 60s	5½	5½	8½	8½
Denim, 2.20s	12	12	15	15½

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Statistics of particular interest to cotton manufacturers showing October operation and the raw material situation:

	Oct.	Sept.
Spindle activity (% capacity)	111.1	124.1
Spindle activity (million of hours)	6,928	7,658
Cotton consumed (bales)	526,424	602,000
Cotton exported (bales)	798,921	617,000
Cotton imported (bales)	8,743	5,000
Ginned to Nov. 14 (bales)	14,949,078	

Cotton

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TEXTILE WORLD'S

Wool Digest

THE following are among the accomplishments of the wool industry in the period during which wool promotion has been going on, according to a summary furnished us by Associated Wool Industries: 1935-36 average in apparel wool consumption reached a 13-year peak and that for the first five months of this year was the highest since 1923. Wool evening wear for women has become fashionable for the first time in a generation. Women's suits were hailed as the most popular style of 1936. Snow and ski suits have attained a tremendously large and growing new market. Summer blankets have opened up a new retail season for blanket selling. Wool underwear has become important news in the wholesale markets. The fall season for wool dresses has been lengthened from six weeks to an average period of over two months . . . A.W.I. would undoubtedly be the last to claim that these and the other steps in wool progress have been due exclusively to promotion. However, if the industry doesn't recognize clearly the connection between the two, it is missing a good bet for the future.—*Editor.*

Hearings!—Early December proved fruitful of hearings of vital interest to the wool industry. On Dec. 7, the Senate Wool Investigating Committee was scheduled to consider proposed suspension of trading in the wool top futures market. The market during its November decline was criticised by some as "fictitious" and supported by others as essential for hedging. As we go to press results are not available. Dec. 17, at Pennsylvania Hotel, New York, the National Bureau of standards will hold a general conference on shrinkage of woolens and worsteds for purpose of arriving at a commercial standard for maximum shrinkage.

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Curtailment begins to amount to something in the industry with the American Woolen Co. down to 40% on Dec. 1 from a high of 130% operating capacity last June.

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Ultimate Aid for Market—Curtailment of production is already making an impression on buyers and it will doubtless be the vital factor in bringing a turning point. When buyers cannot get what they want, when they want it, they will begin to buy ahead once again. Students of the men's wear situation who may have been surprised at the lack of business which followed the 7½ to 17½¢ price cut late last month, see in mill's reduced operations a stronger buying argument than they saw in reduced prices.

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Spring Women's Wear—American Woolen Co. is showing spring women's wear lines at prices close to those quoted on similar fabrics at the opening about a year ago. This means a reduction of 15% from the peak reached last April and held for several months thereafter. The two 10% wage advances in the 12 months have been balanced somewhat by the decline in wool. Shetlands are priced at $1.00 to $1.25, fleeces at $1.22½ to $2.05 and tweeds at 85¢ to $2.05. Polaires and pebbly coatings are included.

•

Annual Meeting—Philadelphia Wool & Textile Association held its annual meeting Nov. 4, and reelected Herbert K. Webb of Chas. J. Webb & Sons Co. as president. William A. Longshore of I. Reifsnyder & Son is first vice-president and Frank D. Levering of Eavenson & Levering Co., is secretary. Joseph R. Walker of Walker & Co., Boston, spoke on using the wool top futures market. "The speculative dealer is hopelessly outclassed by his hedged competitor in the wool and other staple trades," said Mr. Walker.

•

Wool Fabric Labeling—Commercial standard CS65-38 has been promulgated by the Division of Trade Standards, U. S. Dept. of Commerce, covering wool and part-wool fabrics, excluding blankets and knit underwear. On fabrics termed "all wool", a 2% tolerance is permitted; fabrics from 95 to 100% wool (2% tolerance) may be referred to as wool with qualifying phrase such as "decorated with silk" fabrics containing less than 95% of wool when carrying the word "wool" in their label must have it preceded by the guaranteed minimum percentage as "80% wool." The standard includes methods of test. It is applicable on new production from Jan. 1, 1938 and for clearance of existing retailer stocks from Jan. 1, 1939.

•

Woolen Rags—The rag market sank in harmony with the raw wool decline. From October to November a drop of 20% was registered with light hoods moving from 25 to 20¢, while dark worsteds went from 9½ to 8¢, and mixed softs from 12 to 9¢.

•

Wool Tops Sag—A sharp drop in wool tops was registered during November. On the New York Top Exchange, spots went from 96¢ on Oct. 29 to 82¢ on Nov. 26, which marked low ground for the year. The volume of business was very large as the use of the exchange's future contracts for hedge purposes appears to be expanding. Dec. 3 quotation was 85¢.

Wool Dresses Make Gains—"Wool Steps Forward", a booklet reporting facts developed by Associated Wool Industries retail store survey in connection with the extension of the selling season for wool dresses has been released to garment manufacturers. In reply to the question regarding the 1936-37 selling season "What was the date when you closed out your wool dresses?" 27% of the stores reported January, 23% December, 14% March, 11% October, 11% November, 11% February, and 3% April. Figures for sales of wool dresses during fall and winter 1936-37 show percentages of increases ranging from 10% to 71% as compared with 1935-36, 79% of stores replying reported increases for 1936-37 as compared with 64% reporting inceases fo 1935-36.

•

An Optimistic Note—Kenwood Mills, over signature of H. M. Ashby, suggests that its 1938 prices not only probably will not be lower but may even be higher than the 1937 opening levels. The latter, it is pointed out, were lower than immediate conditions warranted because of advantageous wool purchases. This firm stand in the face of buyers' insistence on lower prices caught the market's attention.

•

Key wool prices with usual comparisons, follow:

	Dec. 1, 1937	Nov. 1, 1937	Dec. 1, 1936	Dec. 2 1935
Fine and fine med. territory	$0.97	$0.83	$1.02	$0.76
Ohio ⅜s	.35	.38	.47	.38½
Tops fine 64-66s	.96	1.03	1.30	1.04
Average ⅜s	.80	.92	1.10	.91
High ½	.75	.88	1.02	.84
Noils, fine	.60	.67	.75	.66½
½	.48	.52	.60	.50½
2-40s 60s wstd yarn	1.50	1.65	1.75	1.48½
8020 serge	2.00	2.00	2.05	*

•

Current statistics on wool consumption and mill activity:

	October (5 weeks)	September (4 weeks)
Wool consumed, clean equiv.		
Apparel wool, lb.	16,595,000	17,304,000
Carpet wool, lb.	4,925,000	7,260,000
Machinery activity (40-hr. shift)		
Looms (50-in. and wider)	68.6%	72.7%
Carpet looms	52.5%	70.4%
Combs	74.6%	94.1%
Worsted spindles	57.6%	57.9%
Woolen spindles	80.6%	92.9%

Wool

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TEXTILE WORLD'S

Rayon & Silk Digest

RAYON is asserting its own identity with a vengeance, these days. On one side, the entire retail trade is carefully labeling rayon merchandise in all promotion. On the other, the biggest rayon producer has embarked on a consumer advertising drive to cost nearly a million dollars. In addition, two additional producers are now using the term "rayon" in their advertising. This new recognition of rayon is complimentary, of course, and well-merited; but it is a challenge as well. It is more vital now than ever before that high standards be maintained in manufacture of rayon merchandise. With the eyes of consumers now focused so directly on the synthetic textile, any deviation from quality would result in a very serious set-back for rayon's prestige. —*Editor.*

Rayon Output Curtailed—Reflecting a steady drop in orders from consuming industries, rayon producers last month began curtailing production; by the start of December curtailment had become industry-wide and it was estimated that the yarn producing division was operating at about 75% of capacity. Possibility of further production cuts were being considered.

•

Lanital Fabrics Exhibited—An extensive range of fabrics developed in Italy by the Snia Viscosa, including Lanital, spun rayon and continuous filament fabrics, were exhibited in New York last month by Donna Cora Caetani, of Rome, Italy The fabrics included light, medium and heavyweights and were generally notable for softness and drape. Simultaneously with the exhibition, it was announced that Meyer & Marks Co., American distributors for Snia Viscosa had obtained importing rights for Lanital. J. W. Block, president, added that plans were developing for the erection of a Lanital plant in this country.

•

Sharp Drop in Rayon Fabric Sales—The monthly index of rayon woven cloth deliveries fell to 100 in October, which was the sharpest decline since the index was started, according to a statement by the National Federation of Textiles, Inc. and the National Rayon Weavers Association. This drop, the statement adds, "reflects the serious situation current in all industry today." Key figures follow:

1934 = 100	Oct. 1936	Sept. 1937	Oct. 1937
Taffetas, Twills, Linings and Other Staples	276	232	176
Dress Goods, Novelties, and Other Fancies	112	84	62
Total	168	135	100

Raw Silk Drops 8c.—Reflecting the general let-up in other primary market values, raw silk weakened appreciably through the last four weeks. Crack double extra 13/15 white 78% which sold at $1.72 on the Commodity Exchange, New York, on Oct. 25 had dropped to $1.64 on the same exchange on Nov. 18.

•

Ads Show Rayon Dominance—The complete domination of rayon in the popular and higher price dress goods field was illustrated last month when stores, obedient to the rayon rules, identified merchandise in all promotion for the first time. Scanning of ads disclosed a surprisingly widespread use of the word "rayon".

•

Rayon's Biggest Ad. Campaign—The most extensive consumer advertising campaign ever undertaken in the rayon industry was started last month by The American Viscose Corp. Media will include the chief women's magazines and newspapers, reaching many millions of store customers and extending through 1938.

•

New Outlet Possibilities—Prominent among new market possibilities now receiving close attention of the rayon yarn trade is the consumption of very strong viscose yarn in men's tropical suitings and the prospect of increasing the sheerness in rayon full-fashioned hosiery.

•

Pastel Silks for Spring—Pastel shades, derived from fashions of the Austrian waltz era, are featured in the 1938 spring silk color card announced Nov. 18 by the Textile Color Card Association of the U.S.

•

Ribbed Silks Strong for 1938—Ribbed silks, stiff taffetas, grainy surfaced crepes are among the more interesting of the spring 1938 silk fabrics, it is announced by the International Silk Guild; large flowers and novelty designs are features of an attractive line.

•

Rayon Output At New High—Rayon production (viscose plus cuprammonium) in the United States during the first nine months of 1937, totalled 181,300,000 lb. 14% above last year, and an all-time record, *Rayon Organon* stated.

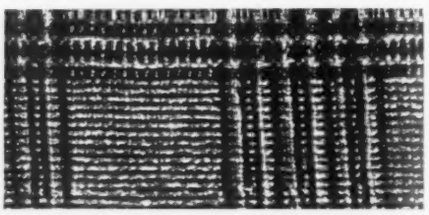
•

Key silk prices and statistics follow:

Prices	Dec. 1, 1937	Nov. 1, 1937	Dec. 1, 1936	Dec. 2, 1935
Crack XX 13/15 white 78%	$1.58½	$1.67½	$2.05	$2.05
Tram,5thd Japan 85%	2.31	2.51	2.90	2.65
Tram Crack XX 78%	2.18	2.36	2.65	2.57
60s-2, spun silk	3.15	3.15	2.95	2.95

Statistics	Imports	Approximate deliveries	Stocks at Warehouses
November, 1937	36,339	31,749	45,424
October, 1937	32,879	36,002	40,834
September, 1937	36,146	36,372	43,957

chez Maxim, Paris
La Duchesse de Windsor portait cette robe de dîner de Mainbocher, un soir chez Maxim's -
La robe, de coupe sport est en lamé argent et noir en un dessin "Prince de Galles". Longue tunique moulée avec encolure drapée et deux poches



Original sketch by Mainbocher of Paris of dinner dress for Dutchess of Windsor showing sport style adapted for formal wear. The fabric used is lamé and rayon (sample above) in pattern adapted from the Glenurquhart plaids frequently worn by the Duke.

Key rayon prices and statistics follow:

Prices	Dec. 1, 1937	Nov. 1, 1937	Dec. 1, 1936	Dec. 2 1935
Viscose process				
75 denier (18–30 fils.)	$0.93	$0.93	$0.90	$0.87
100 denier (40 fils.)	.82	.82	.79	.76
150 denier (40 fils.)	.63	.63	.60	.57
Acetate process				
150 denier	.63	.63	.60	.60
Cupra. process				
150 denier (112 fils.)	.68	.68	.65	.62
Rayon staple 1½, 3, and 5½, viscose den	.25	.25	*	*

Indices of Deliveries

Month	Nov.	Oct.	Sept.,
In year 1937	252	366	560
In year 1936	714	669	713

* Rayon Organon covers 100% data for all processes 1923 to date. Note that acetate is now included. Shipments index for all rayon 1923–1925 = 100.

Rayon & Silk

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TEXTILE WORLD'S

Knit Goods Digest

THE new rayon rules presented difficulties which knitters had to meet. Prompt clarification was essential before the rules could be observed intelligently. And the three major associations in the knitting field responded quickly, doing an efficient job in serving their branches on this knotty problem. . . .Likewise, association action in the direction of recommending curtailment has been an effective influence in this part of the textile industry.. . . . All of which adds further testimony to the value of coordinated effort.—*Editor.*

Curtailment Urged—Curtailment of production was recommended this month by both Earl Constantine, managing director of the National Association of Hosiery Manufacturers, and Roy A. Cheney, managing director of the Underwear Institute. Mr. Constantine urged hosiery mills to cut output immediately after Christmas. Mr. Cheney said that underwear output was 6% ahead of last year and that, while order position was good, curtailment was advisable.

•

New Interest in Rayon Hosiery—Stimulated presumably by the Japanese boycott agitation, stores in various parts of the country this month have featured rayon full-fashioned hosiery. This new interest has resulted in active call for Bemberg full-fashioned numbers.

•

Knitted Jersey for Upholstery—Prospects that the upholstery fabric field may develop into an important outlet for knitted fabrics were seen this month, following reports that Milo Knitting Mills, New York, had begun knitting fabrics for this market.

•

Xmas Outerwear Call Starts—Christmas call for women's sweaters, while slow in getting underway, began to show some progress in the latter part of November. The lag caused price weakening in some districts.

•

Hosiery Weakness Puzzles—Hosiery factors admitted themselves puzzled at the end of November, when neither demand nor prices showed any appreciable strengthening and only a moderate part of normal Christmas business had been placed.

•

Wool Half-Hose Up 46.2%—Continuance of the trend toward wool hosiery was seen in the August shipment figures of the National Association of Hosiery Manufacturers. These figures show a gain of 46.2% for August 1937 against August 1936 and against a decrease of 3.9% for all types.

•

Hosiery Sales Off 12.9%—Reflecting the general business recession hosiery shipments in October this year were 12.9% below the same month last year. The chief declines were found respectively as follows: children's and infants' hosiery, 29.3%, women's seamless, excluding wool, 23.3% and cotton bundle goods 20.7%. However, the 10-months shipment figure for 1937 continued 6.3% ahead of that for 1936.

•

Hosiery Boycott Assailed — The American silk hosiery industry representing 85,000 workers in 325 companies with $150,000,000 equipment would be seriously damaged by any concerted anti-Japanese movement against domestic products made of silk, it was stated by Earl Constantine, managing director of the National Association of Hosiery Manufacturers. Adding that so far the movement had not affected hosiery, the statement points out it would have a boomerang effect by hurting American workers and industry.

•

Suggests ½¢ Doz. Royalty—A committee representing the seamless hosiery industry Nov. 23 agreed to recommend ½¢ per dozen royalty on all numbers having tops infringing on patents held by Robert E. Davis and Elastic Patents Co., Chattanooga, Tenn. Originally a 2¢ royalty involving $100,000 payment yearly had been considered.

•

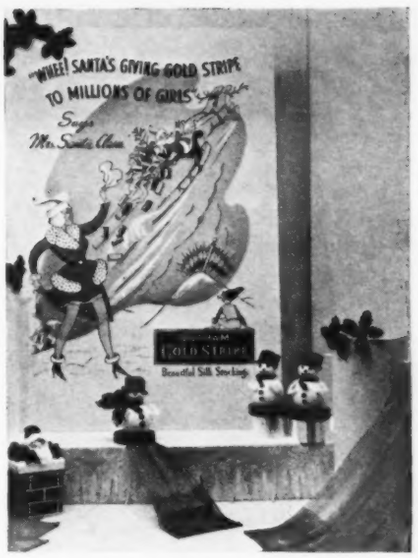
Oppose Glove Duty Cut—A committee of the Fabric Glove Group of the Underwear Institute recently appeared before the U. S. Committee for Reciprocity Information, in opposition to reduction of duty on Czechoslovak gloves.

•

Western Outerwear Meeting—Knitted outerwear sales problems were analyzed at the annual convention of the Western District Knitted Outerwear Manufacturers' Association, held last month in Chicago. Aggressive merchandising as solution to the current lull was urged by David Karger, Eagle Knitting Mills, Milwaukee, who was reelected president; I. B. Davies, Bradley Knitting Co., Delavan, Wis., Sidney S. Korzenik, executive secretary of the National association, and J. M. Baskin, of Fairchild Publications.

•

Underwear Prices Hold—Heavy underwear prices held through November despite substantial stocks in hands of both manufacturers and wholesalers. Fall 1938 lines are expected to be adjusted downward when they open in January, in sympathy with the cotton market recession.



Novelty hosiery containers and "Mrs. Santa Claus" lend interest to this window at the Gotham Silk Hosiery Co. shop in New York.

•

Clarify Hosiery Identification—Plans for clarification of the rayon identification rules as applied to hosiery were developed last month when a hosiery industry committee conferred with the Federal Trade Commission in Washington.

•

Security Tax Cost—Pointing out that the 1938 social security tax approximates 10c per doz. pairs of women's full-fashioned hosiery, the National Association of Hosiery Manufacturers urged mills to include this item in their cost calculations.

•

Hosiery Groups Merge—Consolidation of the Full-Fashioned Hosiery Association, open shop, with the Full-Fashioned Hosiery Manufacturers of America, closed shop, and dissolution of the former, was announced Dec. 5, in Philadelphia. Personnel of both bodies will be retained.

Knit Goods

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TEXTILE WORLD'S

Processing Digest

A STEP in the right direction was the meeting last month between representatives of the Textile Converters Association and of the Rayon & Silk Printers Association. In the past, lack of harmony between the converters and printers has aggravated the problems of both groups. Formation in August of the printers' association has been followed by earnest efforts to improve conditions in the rayon and silk printing industry. Not the least important of these endeavors is that to establish a closer relationship between the converters and printers. With a better appreciation of the mutuality of their interests, members of the two associations should find it possible to iron out many of their differences and to work together on the solution of the problems which they have in common.—*Editor.*

Textile Chemists—At the annual meeting of the American Association of Textile Chemists & Colorists, held Dec. 3 and 4, in Philadelphia, the following technical program was presented: A. Frank Bowles, E. F. Houghton & Co., "A New System of Organic Synthesis and Its Application to Textile Assistants"; Dr. M. L. Crossley, Calco Chemical Co., "Metallized Azo Dyes"; Bertil A. Ryberg, Research Associate, Lowell Textile Institute, "Extraneous Matter in Textile Materials"; Dr. E. W. Pierce, Ciba Co., "Practical Consideration of Modern Wool Dyeing Methods"; Dr. Isaac Godlove, E. I. du Pont de Nemours & Co., "Color Measurement in the Dyestuffs Industry with Special Reference to Fastness Tests"; Dr. Milton Harris, Research Associate, National Bureau of Standards, "What Can the Mill Man Expect from Fundamental Research?"; Dr. Herbert F. Schiefer, National Bureau of Standards, "Evaluation of Crease-Resistant Finishes for Fabrics"; Wm. D. Appel, National Bureau of Standards, "The Use of Standard Dyeings for Color Fastness to Light"; J. B. Crowe, Procter & Gamble Co., "Detergents and Their Application to Textile Processes"; Dr. Irving J. Saxl, Consulting Physicist, "The Quantitative Measurement of Stiffness and Resiliency"; Dr. Edward R. Schwarz, Massachusetts Institute of Technology, "Trends in Textile Technology"; Charles F. Goldthwait and Earl McLean, Industrial Fellows, Mellon Institute, "Suggestive Observations on the Wetting, Mercerization, and Dyeing of Cellulose." A detailed report of the meeting will appear in our January issue.

•

Printing Problems were discussed at the annual meeting of the Textile Division, A.S.M.E., held Dec. 8, in New York. Wallace Taylor spoke on "Mechanical Equipment in Printing"; J. F. Halloran took as his subject "Wanted—More Engineering in Textile Printing"; I. F. Chambers described "Dyes and Gums used in Textile Prints"; and Stephen J. Kennedy spoke on "Merchandising Requirements."

•

Iridescent Hosiery—Dyeing and finishing of iridescent hosiery were described by Nestor Groteluesehen, of Magnet Knitting Mills, Clinton, Tenn., at a meeting of the Southeastern Section, A.A.T.C.C., held Nov. 15, in Knoxville, Tenn., Walter E. Hadley, of Standard-Coosa-Thatcher Co., discussed the relations between chemistry and dyeing with special reference to yarn dyeing.

•

Dyeing and Finishing of spun rayon fabrics were described by Ross M. Stribling at the annual meeting of the Piedmont Section, A.A.T.C.C., held in Pinehurst, N. C., Nov. 6. Dr. H. H. Mosher of Onyx Oil & Chemical Co., Jersey City, N. J., spoke on the degumming of silk hosiery. Dr. Harold DeWitt Smith, A. M. Tenney Associates, New York, discussed some of the problems involved in dyeing and finishing acetate yarns and fabrics. Officers of the division elected for the ensuing year are as follows: Dr. Raphael E. Rupp, Pacific Mills, Lyman, S. C., chairman; Edgar Ford, Sayles Biltmore Bleacheries, Inc., Biltmore, N. C., vice-chairman; J. W. Ivey, Mathieson Alkali Works, Charlotte, N. C., secretary; Grady Miller, Elliott Knitting Mills, Hickory, N. C., was re-elected treasurer.

•

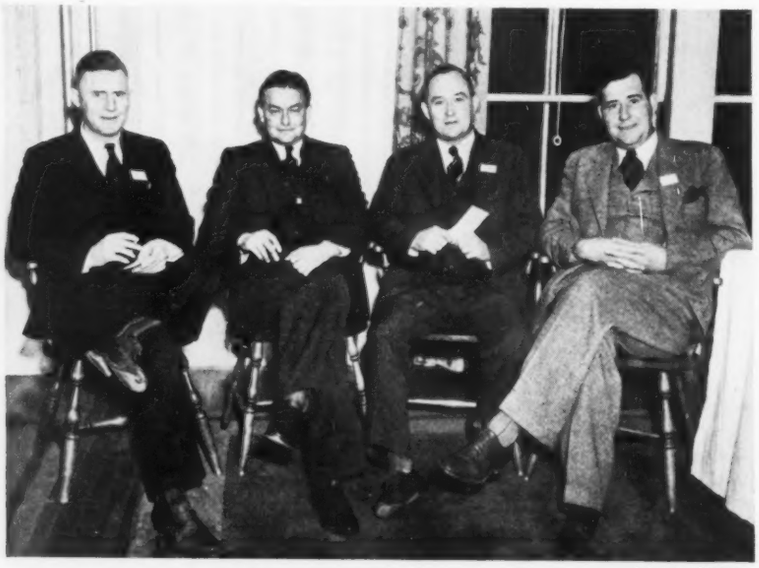
Warmth of Textiles—New apparatus for measuring the thermal transmission of textiles has been designed and built by Richard S. Cleveland, of the Textile Section, National Bureau of Standards, Washington, D. C.

•

Stability Plan—Reorganization of the Screen Printers Guild has been proposed by Frederick E. M. Ballon, counsel to the Guild. The plan offered embodies a code of procedure somewhat similar to that adopted by the recently organized Rayon & Silk Printers Association. The proposed code calls for posting of prices for screen printing and screen making and requires ten-days' notice of any change. It is proposed also that the association adopt a label which members would be licensed to use but revokable for failure to live up to the code.

•

Velvet Resilience tests on treated and untreated fabrics are now being made at the National Bureau of Standards, Washington, D. C., by means of the Compressometer, an instrument designed by Herbert F. Schiefer. Measurements indicate crush-resistant finishes increase compressional resilience of pile.



John G. Hemmer

New chairman of Piedmont Section A.A.T.C.C., with group of previous officers, from left to right: Grady Miller re-elected treasurer; Dr. Raphael E. Rupp, newly elected chairman; Thomas R. Smith, retiring chairman; A. Henry Gaede, retiring secretary.

Processing

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Mill News

Cotton Mill News

Alabama Mills Co., Aliceville, Ala., has installed new equipment in a recent addition. Spindles have been increased from 11,440 to 15,600 and cards have been increased from 33 to 49.

Bridgeport (Conn.) **Fabrics, Inc.**, is the name under which the one time Bridgeport Coach Lace Co. is now operating.

Fulton Bag & Cotton Mills, Atlanta, Ga., have awarded general contract to A. K. Adams Co., 542 Plum St., N.W., for alterations and improvements in portion of plant.

Columbus (Ga.) **Mfg. Co.** announces net profit of $340,885 before income tax for year ended Aug. 31, 1937, compared with $57,663 before charges for the preceding year.

Primrose Bedspread Corp., Dalton, Ga., is now housed in its new quarters at 51 North Hamilton Street, operating 27 chenille machines.

Georgia-Kincaid Mills, Griffin, Ga., is discarding all obsolete equipment and replacing it with modern machinery. Mill No. 4 is being abandoned and some of the machinery formerly used is being transferred to Mill No. 2.

Bibb Mfg. Co., Macon, Ga., reports net earnings of $1,207,126, for the fiscal year ended Aug. 31, 1937. A net profit of $1,054,543 was reported the previous year. Bibb plans construction of swimming pools at the Oglethorpe Street Unit and at the Payne City Unit. The company has pools at the mills in Columbus, Ga., and Porterdale, Ga.

Capps Cotton Mills, Toccoa, Ga., was recently sold. The new owners will incorporate and begin the manufacture of goods as soon as possible, employing about 100 operatives. Work has begun on an addition, and extensive repairs will be made.

Cabot Mfg. Co., Brunswick, Me., has competed a modernization and improvement program at mill, in progress for about eight months. About $250,000 has been expended.

Border City Mfg. Co., Fall River, Mass., shows operating profit for year ended Oct. 2, 1937, of $37,000, compared with $55,527 for previous year.

Firestone Rubber & Latex Co., Fall River, Mass. recently organized as a subsidiary of Firestone Tire & Rubber Co., Akron, Ohio, has taken over the former local mill of American Printing Co., consisting of a group of five main buildings and about 20 auxiliary structures.

Luther Mfg. Co., Fall River, Mass., reports net earnings of $39,500 for fiscal year ended Oct. 2, 1937.

Berkshire Fine Spinning Associates, North Adams, Mass., reports profit of $1,417,899 for the fiscal year ended Sept. 30, 1937, compared with $72,843 for the year previous. There was however a net loss of $252,485 for the latest fourth quarter. Volume was $19,388,824. At close of the 1936 fiscal year there was a deficit of $3,370,412 in surplus account while at the end of the present fiscal year there was a surplus of $4,253.

Ware Industries, Inc., Ware, Mass., have been organized by a group of local citizens, with subscriptions totaling $50,000, to take over the former mills of the Otis Co., and lease to a number of smaller industries.

J. W. Sanders Cotton Mill, Meridian, Miss., has completed an addition in which 20 cards, 100 additional looms and 25,000 spindles, will be installed. The plant at Magnolia has completed a two-story, 26 x 150 ft., addition.

Hathaway Mfg. Co., New Bedford, Mass., reports net profit of $177,260 for fiscal year ended Oct. 2, 1937, compared with $253,325 for previous year.

Kilburn Mill, New Bedford, Mass., reports net loss of $55,790 for fiscal year ended Oct. 2, 1937, against net profit of $11,103 for previous year.

Neild Mfg. Corp., New Bedford, Mass., is arranging for a reorganization under Section 77-B. The mill will continue in operation pending completion of financial program.

Taber Mill, New Bedford, Mass., was bid in by RFC at foreclosure sale Nov. 22. For land and buildings $5,000 was paid subject to taxes, and $70,000 for machinery and equipment. RFC, the largest creditor, wishes to keep the mill intact as a operating unit.

Algodon Mfg Co., Bessemer City, N. C., has sold all of its equipment in unit No. 2 to the Walker Machine Co. of Gastonia, N. C., and has abandoned this unit.

Edenton (N. C.) **Cotton Mills** have completed an extensive modernization program which included the changing of all spinning frames to Whitin long-draft models and the replacing of all old twisters with modern Whitin large-package twisters.

Groves Thread Co., Gastonia, N. C., announces installation of 12 Whitin spinning frames in the No. 2 plant, and two automatic breaking and feeding machines in the carding department. It is enlarging its gymnasium.

Walker Mills, Inc., Gastonia, N. C., newly organized, will engage in the manufacture of textile fabrics, under an authorized capital of $100,000, with $300 subscribed by Jerry W. Walker, John T. Houren and M. E. Balthis, all of Gastonia.

Oakdale Cotton Mills, Jamestown, N. C., announces installation of 10 Whitin large package twisters. The company is also changing all intermediates to long draft slubbing.

High Falls (N. C.) **Mills Co.** is constructing a modern school building for the children of the operatives at a cost of $50,000.

High Point (N. C.) **Spinning Co.** has been overhauled and some new machinery has been installed.

Carolina Cotton & Woolen Mills, Leaksville, N. C., have completed a new and modern filter plant located on the Spray-Draper Road, near Leaksville, to supply water for drinking in Draper, N. C., and for industrial use in both Spray and Draper, for units of Marshall Field & Co., located there.

Washington Mills Co., Mayodan, N. C., has resumed operations, with most of the 1,100 employees returning to work. The plant was closed when the Mayo and Dan rivers overflowed, damaging it to the extent of approximately $10,000.

Mooresville (N. C.) **Cotton Mills** have installed a twin kier dyeing machine supplied by Gaston County Dyeing Machine Co.; also package carriers and auxiliary equipment.

Abbeville (S. C.) **Cotton Mills** reorganization plan under 77B involves increase in capital stock and payment of current debts as they mature.

Piedmont (S. C.) **Mfg. Co.** has completed work on a new $50,000 filter plant. The old plant will be

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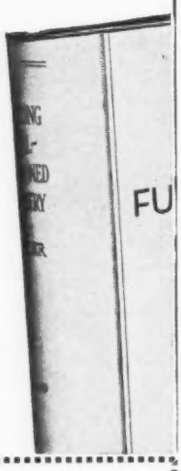

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Mill News

discarded. Twelve new dwellings for operatives are being built.

Monarch Mill, Union, S. C., has completed a community house for the operatives and families of the Ottaray and Monarch plants at Union.

Turner Mfg. Co., Chattanooga, Tenn., is completing a building measuring 75 x 100 ft.

Riverside & Dan River Cotton Mills, Inc., Danville, Va., is engaged in a $100,000 enlargement and expansion program. This will include the erection of a 50 x 150-ft. addition to be used for the kier department. The work is in charge of C. L. Lewis, of Lynchburg, Va.

Southern Fibre Corp., Richmond, Va., has been chartered to process wool, rayon and other materials. Matt Wiltshire is president and R. S. Wiltshire, secretary-treasurer.

Dominion Textile Co., Ltd., Montreal, Canada, has purchased a tract of land containing nearly seven acres in St. Paul ward near Ville LaSalle, for $27,935.

Wool Mill News

West Buxton, Me. The woolen manufacturing plant which was ruined by the great flood of March 1936, is to be revived and repairs are to begin immediately.

Partlow Garnetting Mill, Canton, Mass., has been bought by the United Waste Co., Boston, and will be run as the Canton Garnetting Co. on rayon, silk and wool.

Holyoke (Mass.) Worsted Mills, Inc., has acquired the Lawrence (Mass.) Dye Works, and is moving the equipment to Holyoke, where the dyeing industry will be quartered in the old Hadley mill property.

Potter-Harris Co., Needham Heights, Mass., has been organized with capital of 1000 shares of stock, to manufacture woolen and worsted goods. Albert Pratt is president; Mel Potter, vice-president; and Gilbert Harris, treasurer.

Talbot Mills, No. Billerica, Mass., has been shut down on account of a lack of orders and because of business uncertainty. Contrary to reports, permanent closing is not under consideration.

Clinton (Mich.) Woolen Mfg. Co.—A controlling stock interest in this company has been acquired by T. B. Nilsen, Mishawaka, Ind., who will be active in the management in the future. David Hamilton and C. L. Kimball will continue as president and secretary-treasurer, respectively.

Winslow Bros. & Smith, Inc., makers of finished sheepskin goods, have purchased the former mill of the American Woolen Co., in Tilton, N. H.

American Hair & Felt Co., New York, reports earnings for first nine months of 1937 at $391,542 compared with $290,176 for same period of 1936.

Firth Carpet Co., New York, lately increased its capital by $2,500,000 5% cumulative convertible preferred stock said to be for general expansion of business.

Sidney Blumenthal & Co., New York reports net profit of $64,169 for third quarter of 1937 compared with profit of $318,143 for third quarter of 1936.

Magee Carpet Co., and James McGee Webbing Co., Bloomsburg, Pa., affiliated organizations—Controlling interest in these mills has been secured by Harry L. Magee, son of James Magee, carpet manufacturer, who died in 1919.

Charles P. Cochrane Co., Philadelphia, Pa., is transferring a number of looms and auxiliary equipment from its local narrow loom mill to plant of the **Blueridge Co., Inc.,** Glasgow, Va., an affiliated organization.

John Zimmermann & Sons, Erie & Castor Avenues, Philadelphia, Pa., have taken over the business of the Zimmermann Mills which were located at Allegheny Ave. and 21st St. The first named firm manufactures friezes, mohairs and pile upholstery fabrics, and will manufacture jacquard pile upholstery goods. The news item in these columns in our October issue associating the Zimmermann firm with the manufacture of knit goods is not correct.

Danville (Vt.) Mfg. Co. plant was destroyed by fire in Danville, Vt., Oct. 31, at a loss of $50,000.

Black Bear Woolen Co., Proctorsville, Vt., will close down and be offered for sale according to local statements.

Keyser (W. Va.) Worsted Mill, idle for some time and now being remodeled, has begun operations in the spinning department and will place other divisions in production as soon as equipment is installed. W. D. Wright is superintendent.

Merrill (Wis.) Woolen Mills, Inc., are completing construction of new one and one-half story addition to mill, 30 x 70 ft., and will equip for expansion.

Renfrew Woolen Mills, Ltd., Carleton Place, Ont., are making alterations to their plant as well as installing 12 new Crompton & Knowles automatic looms. The firm will also install a new double action napper, press, and extractor.

Rayon and Silk Mill News

Rossie Velvet Co., Mystic, Conn., has discontinued production at local mill for an indefinite period. The branch mill at Willimantic, Conn., will be continued in service pending current liquidation plans.

Hartford Rayon Corp., Rocky Hill, Conn., reports net profits for five months to Aug. 31, 1937 amounting to $134,895. The predecessor company earned net profit of $57,882 the first quarter of 1937.

Celanese Corp. of America, Amcelle, near Cumberland, Md., has awarded contract to Belmont Iron Works, Philadelphia, Pa., for structural steel framing for new one-story mill unit. Cost reported over $150,000.

Maryland Silk Mills, Inc., West Warren, Mass., which moved here about six years ago and was employing 250 persons a year ago, is being moved to New Jersey.

Beldray Throwsters, Inc., Belding, Mich.—Former mill of this company, idle for some time, has been acquired by a new organization, which will take over the property at once.

Union, Miss.—Town Council has awarded general contract to Walter L. Perry Construction Co., Philadelphia, Miss., for one-story industrial building on Magnolia St., at price of $49,000, to be occupied under long-term lease by a company, headed by Donald V. Smith, to operate a silk throwing mill.

Arms Mfg. Co., Manchester, N. H., makers of inner linings, have bought

Mill News

No. 9 mill and an adjoining dyehouse from Amoskeag Industries.

Belding Heminway Co., New York, reports net profits for first nine months of 1937 of $437,005 against $407,826 the year previous.

Celanese Corp. of America, New York, reports net profit for third quarter of $1,025,208, bringing total for 9 months to $4,469,315.

Century Ribbon Mills, New York, report net profit of $111,766 for first nine months of 1937 compared with $109,251 for year previous.

Phoenix Silk Mfg. Co., New York, N. Y., has secured permission to reorganize under a plan submitted to the Federal Court.

American Enka Corp., Enka, N. C., has closed bids on general contract for new additions to mill, with low bid received from the Daniel Construction Co., Anderson, S. C., which is scheduled to secure award. Entire project will cost close to $500,000, and is scheduled for completion early in the spring.

Burlington Mills, which for sometime has been maintaining headquarters in the Jefferson Standard Building, Greensboro, N. C., moved into its new $75,000 office building at the corner of North Eugene and West Bellemeade streets, during the first week of November. Burlington profits for the third quarter were $139,430 compared with $473,576 a year previous.

Charles Sommer Silk Mill, Inc., East Stroudsburg, Pa.—Application has been made in the United States District Court for the appointment of a receiver for this company.

Royal Weaving Co., Pawtucket, R. I., is being sought by a syndicate headed by Jerome A. Newman, New York, and an offer of $78.50 per share has been received. The directors have recommended acceptance by the stockholders. It is reported that, if the deal goes through, upwards of $1,000,000 will be expended in modernizing the plant.

Jefferson Mills, Inc., Pulaski, Va., are pushing erection of new local silk throwing mill and unit is scheduled to be ready for occupancy about the middle of January, when installation of equipment will be carried out. An air-conditioning system will be installed. New plant will cost about $75,000, with machinery. H. C. Bibberstein, Charlotte, N. C., is architect and engineer.

E. I. du Pont de Nemours & Co., Waynesboro, Va., has begun the erection of a boiler house addition, which is expected to be completed by Jan. 15.

Canadian Silk Products Ltd., Sherbrooke, Que., is planning an addition to its plant involving expenditure of $100,000. Proposed new building is expected to be 54 x 283 ft. one story, and 26 x 125 ft. two stories.

Dominion Silk Mills, Ltd., Toronto, Ont., has plans for new one-story addition to mill on Mark St. Cost estimated over $35,000.

British Celanese, Ltd., reports profit for year ended July 3 of £870,837 compared with £1,050,180 in last previous year.

Knitting Mill News

Nobby Knitting Mills, 1131 North Highland Ave., Hollywood, Calif., has been formed by William Meyers, and will do business at that address.

Maywood Silk Hosiery Mills, Inc., Cordele, Ga., has installed five new knitting machines.

Mode Knitting Mills, Inc., 2909 South Indiana Ave., Chicago, Ill., has leased space in building at 1304–24 South Indiana Ave., totaling about 35,400 sq. ft. of floor area, and will occupy for mill.

Hurley, Miss., has under construction a mill building which will cost $60,000, in which a knitting company will operate. The operating company is said to have secured a long lease on the building.

Bronx Knitting Mills, Inc., Bronx, New York, have been chartered with capital of 100 shares to operate a local mill. New company is represented by Abraham M. Zaller, 10 East 40th St., New York, attorney.

Union Knitting Mill, Mechanicville, N. Y., has been purchased by Walter J. Mooney, head of the **Ballston-Stillwater Knitting Co.**, for future plans.

Standard Hosiery Mills, Alamance, N. C., has started work on an addition, 105 x 140 ft., to provide space for 16 additional full-fashioned hosiery knitting machines.

Asheboro (N. C.) Hosiery Mills will start in January with 12 (nine leggers and three footers) 24-section 45-gauge Reading machines.

Bossong Hosiery Mills, Asheboro, N. C., have begun the construction of a new boiler room, 42 x 52 ft. A new boiler will be installed and the old boiler will serve as an additional unit.

Hudson Silk Hosiery Mill, Charlotte, N. C., has completed the construction of an addition to the dyeing and finishing department on North Brevard St., containing 3,000 sq. ft. floor space, costing $25,000. There are additions under construction also at the other unit of the company on Monroe Road.

Thornton Knitting Mills, Denton, N. C., a subsidiary of the Maurice Mills of Thomasville, N. C., having completed a new building, opened their new plant early in December.

Huntley-Jackson Co., Greensboro, N. C., has filed petition for 77-B reorganization.

Brown Bros. Hosiery Mill, Hickory, N. C., announces that the partnership of its operators, Z. W. Brown and A. M. Brown, has been dissolved. Z. W. Brown will continue to operate in the present building with 83 machines. A. M. Brown plans to construct a new building in Windy City, N. C., to operate 42 machines.

Blue Ridge Hosiery Mill, Marion, N. C., Albert B. Carpenter, proprietor, has purchased land on Lail Street, Marion, as probable new location for the mill. The company plans to build when conditions warrant.

McMaid Hosiery Mill, Marion, N. C., and the hosiery plant operated by M. L. Good of Sevier, N. C., are being consolidated and will be located at Sevier.

Lincoln Hosiery Mills, Inc, Lincolnton, N. C., recently organized, are completing installation of equipment and will soon begin operations employing about 75 persons. L. W. Gleeson, operating a hosiery mill at High Point, N. C., is president; A. Frank Arnold is vice-president; and T. N. James, secretary and treasurer.

Hugh Grey Hosiery Co., Concord, N. C., has been chartered to make and sell hosiery and other knit goods under $250,000 capital, with $60,000 stock subscribed by A. R. Hoover, Jr., Hugh M. Grey and W.

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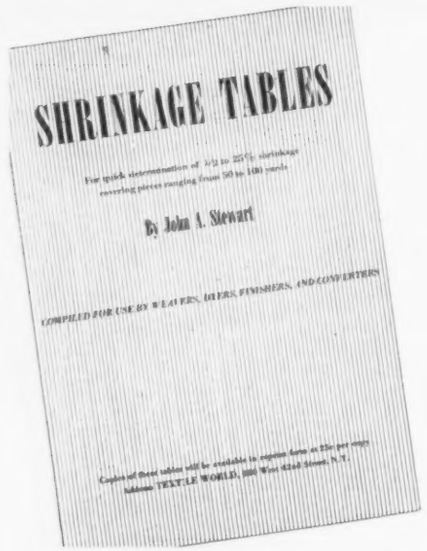

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Mill News

W. Flowe, all of Concord. Building 120 x 75 ft. will be erected and production will start about April 1.

Jantzen Knitting Mills, Portland, Ore., report net profit of $301,145 for fiscal year ended Aug. 31, 1937 on sales totaling $3,523,300. Figures for comparable items a year previous are $369,159 and $3,062,810.

Vanity Hosiery Mills, Inc., Philadelphia, Pa., have been chartered in Delaware, under direction of Corporation Guarantee & Trust Co., Land Title Bldg., Philadelphia, Pa., with capital of $24,000, to operate a mill in the vicinity of Philadelphia.

R. I. Knitting Mills, Inc., Pawtucket, R. I., in hands of J. J. Corrigan, trustee, is seeking to liquidate.

Mountain Hosiery Corp., Narrows, Va., has acquired property at Englewood, Tenn., and will use for new mill. Present plant at Narrows will be removed to new location, with installation of additional equipment. Herbert Saphier, Brooklyn, N. Y., is president.

Paul Knitting Mill, Pulaski, Va., will give employment to 100 additional workers upon completion of a second-story addition and installation of supplementary machinery.

Canadian Silk Products, Ltd., Sherbrooke, Quebec, will erect a $100,000 annex, according to A. A. Munster, managing director of the mill.

Processing Plant News

Pataganset Finishing Co., Inc., East Lyme, Conn., has incorporated for $50,000 to operate a cloth finishing plant. George M. Charbonneau, Norwich; Edmund J. Eshenfelder, 302 State St., New London; and Catherine E. Cleary, New London, are incorporators.

Aspinook Co., Jewett City, Conn., has voted to liquidate. Mill and equipment, with other company assets, will be disposed of. Phillip A. Johnson, president, Arthur M. Brown and Earle E. Gilbert are members of a liquidating committee, authorized by stockholders to dispose of property.

American Dyeing Corp., Rockville, Conn., has petitioned the Federal Court at New Haven, Conn., for permission to reorganize under Section 77-B.

Bailey Co. Plant No. 2, Amesbury, Mass., formerly the Wing Co., has re-opened after considerable renovation. The lacquer coating department is on the second floor.

Plymouth Finishing Co., Fall River, Mass., recently organized, is occupying the former local mill property of the Eddy Woolen Mill, and will install additional machinery for its dyeing division.

Southbridge (Mass.) Finishing Co. and **Sturbridge Finishing Co.,** Fiskdale, Mass., both owned and operated by Golding Bros., New York, reopened on Nov. 22 for their 800 employees at reduced wages. Both mills were shut for two weeks, instancing a large unsold stock of printed goods and the drop in the cotton market. The mill owners promised that wages would be restored fully when conditions improve.

Sunbury Converting Works is offering its silk and rayon dyeing, finishing and weighing plant at Belvidere, N. J., recently closed, for sale in its entirety.

Cliftex Corp., Clifton, N. J., will take over and operate local mill of Standard Textile Products Co., in accordance with a ruling of the United States District Court in connection with reorganization program of last noted company. In turn, the Standard company will secure the return of a promissory note for $260,000 given the Cliftex Corp.

Caledonia Print Works, Hoboken and Paterson, N. J., have filed a petition in bankruptcy, asking permission to reorganize under Section 77-B, of the Federal Bankruptcy Laws.

Milbank Bleachery Corp., Lodi, N. J.—Former mill of this company, consisting of four large buildings, was destroyed recently by fire. The plant had been closed for some time, since company was declared bankrupt, and all machinery and equipment removed.

American Processing Corp., Paterson, N. J.—Machinery and equipment at this mill was sold recently at public auction at plant site, Market and Jersey Sts., to a number of purchasers.

Olympic Skein Dyeing Co., Inc., Paterson, N. J., recently chartered with capital of $10,000, plans operation of local dyeing and finishing mill. Company is represented by William B. Kaufman, 45 Church Street, Paterson, attorney.

Philco Print Works, Paterson, N. J., have been formed with capital of $50,000, to operate a local dye and print mill. New company is represented by David Cohn, 115 Market St., Paterson, attorney.

Textile Processors Corp., Paterson, N. J., has been organized with capital of 1000 shares of preferred and 1000 shares of common stock, to operate a local dyeing and finishing mill. New company is represented by Emanuel Shavick, 140 Market St., Paterson, attorney.

Sutton Dye Works, Inc., New York, N. Y., have been organized with capital of 100 shares of stock, to operate a bleach, dye and finishing mill. Company is represented by Abraham Goldstein, 535 Fifth Ave., attorney.

Tryon (N. C.) Processing Co., Inc., with authorized capital of $20,000 and subscribed stock of $300, has been chartered to make and process yarns of all kinds. Incorporators are F. S. Wilcox, Rosa B. Wilcox and Austin K. Wilcox, all of Tryon, N. C.

S. D. Bausher & Sons, Inc., Hamburg, Pa., bleaching and dyeing plant, has been closed down and will be offered at public sale. Plant was operated for the last 30 years. It comprises a one and 2-story brick and steel structure with about 44,700 square feet of floor space.

Rock Hill (S. C.) Printing & Finishing Co. has work under way on construction of a new warehouse 100 x 150 ft., and an addition 25 x 75 ft., two stories, to the bleachery, which will be used to enlarge the office.

Cranston (R. I.) Print Works Co. has awarded general contract to Bowerman Brothers, Providence, for a waste disposal system to cost $21,975.

Textile Processing Co., Woonsocket, R. I., recently organized, has taken over a former local warehouse of the Bouvier-Brien Co., and will remodel and equip at once for new mill. Facilities will be provided for employment of about 50 persons. Lawrence Jarrett, formerly president of Bernon Worsted Mills, Woonsocket, R. I., will head the new company, acting as president and treasurer.

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This advance is in large part due to our greatly improved spindle assembly which will be explained on request. That the trade appreciates it is evidenced by the fact that orders for small package spindles, both for new machines and rebuilt machines have been scheduled for many months in advance.

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If you are NOT one of these mills, then the new J & B spindles are working AGAINST you, making it more difficult for you to meet competition and make a profit.

We'd like to work FOR you. Tell us your production requirements and let us estimate what new or rebuilt J & B equipment will save you.

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Textile Industry
NEWS
W. Thomas Love, Jr., formerly with
David C. Carroll has been elected a
member of the board of directors of the
Marlboro Cotton Mill of McColl, S. C.
succeeding E. E. Strudwick
W. D. Kellogg, head of the depart-
of engineering and patent research
Paul K. McKenney,
and treasurer of Swift
Ernest D. Walen, agent of the worsted
division of Pacific Mills, Lawrence,
has been elected president of
Mass., Textile Institute Alumni As-
Russell T. Fisher, presi-
Association of Cotton
Bossong Hosiery Mills, Inc.,
have begun superstructure
mill, 109 x 140 ft.
Joseph Draper, treasurer of Draper
Boston, and George H. Elliott,
treasurer of Elliott
Maywood Silk Hosiery Mills, Inc., Cordele, Ga.,
formerly the Crisp Hosiery Mills, have begun
William Whitman Hobbs,
Franklin W. Hobbs, pres
ton Mills,
Clifford Holdsworth
Byron
Sanford (N. C.) Cotton Mills will
second story on the addition completed last
April.
looms is plan
Dominion Textile Co., Ltd., Mon
has awarded general contract to
to Magog (Que.) Print Works, t
to $500,000.
Will
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Industrial Rayon Corp.,
bids on general
O. D. Boyd, superintendent
Falls plant of Martel Mills
burg, S. C., is
plant of the com
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tions after being
years.
Cotton Mills, Clin
Commerce (Ga.) Mfg. Co., recently organized
to manufacture hosiery, has completed plans for
Erection contract has been let
Monroe, Ga. C. W. Moon,
Rudolph Boehringer has resigned as
president of United Piece Dye Works,
Lodi, N. J. He had been with the com-
pany since 1914.
Captain H. P. Meikleham, aged
agent of Pepperell Mfg. Co., Lin
in New York on July 24.
Meikleham was in ch
Massachusetts
American Cellulose & Chemical Mfg. C
180 Madison Ave., New York, has
negotiations for purchase of tract
acres of land on
Georgia Supervisors Meet
Operating Executives of
scheduled to hold fall
at Georgia Tec
weaving
Sidney Blumenthal & Co., Inc., Shelton,
have begun superstructure for one-story ad
200 ft., for which general contract re
Turner Construction Co.
Holly-Maid Sportswear Mills, Inc., Los An
been organized with capit
Leonard Walsh has
Mt. Hope
American Woolen Co.
plants from June 30
ventory.
Samuel F. Ruben has resigned
president of Merit Hosiery Corp.,
manager of sales of
York.

Lots of it - - - -

News of men . . . news of plants . . . promotions . . . changes . . . new plants . . . extensions . . . revisions.

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1. Guides. John A. Eberly. Catalog No. 37 gives construction, application, and dimensional data on company's complete line of porcelain guides for the textile industry; includes rollers, tensions, thread and quiller guides, etc.

2. Microscopes. Bausch & Lomb Optical Co. Illustrated circular describes construction, uses, specifications, and advantages of company's Model KX wide-field binocular microscope.

3. Air Conditioning. B. F. Sturtevant Co. Booklet offers essential data on major applications of company's air handling and conditioning equipment; includes cooling, heating, moistening, cleaning, conveying, drying, ventilating, conditioning, exhausting.

4. Bearings. New Departure, Division General Motors Corp. Booklet entitled "Sealed" outlines principles involved in N-D-Seal bearing and chief uses of this type bearing; cites case histories and accomplishments.

5. Clutches. T. B. Wood's Sons Co. Folder describes characteristics, construction and services of company's new U.G. universal giant friction clutch; dimension tables included.

6. Yarn Dryers. Proctor & Schwartz Inc. Illustrated folder presents chief features and advantages of company's new package yarn dryer, with information on floor-space saving and other economies.

7. Control Instruments. Wheelco Instruments Co. Folder lists nine advantages of company's proportioning control, offers general information on control, and gives prices and specifications.

8. Cleaning Equipment. Homestead Valve Mfg. Co. Circular gives data supporting claim that Hypressure Jenny does jobs eight to twelve times faster than other methods; industrial applications described.

9. Tube Couplings. Packless Metal Products Corp. Bulletin describes company's seamless flexible metal hose, detachable self-sealing couplings, self-flaring tube couplings, and copper tubing; also contains price list and data sheets.

10. Capacitors. General Electric Co. Booklet, illustrated with art photographs, gives detailed information on Pyranol capacitors, describing construction and telling how and where this equipment should be used.

11. Rotary Pressure Joints. Johnson Corp. Folder "Speed Heet" system for admitting steam to and removing condensate from revolving cylinders of cotton slashers and discusses the following advantageous factors of this equipment: quicker heating, higher speeds, increased production, less maintenance and decreased warp stretch and breakage. Folder also illustrates use of rotary pressure joints on various types of textile machines.

12. Bobbin Covers. Atwood Machine Co. October issue of *Atwood Twists* tells of research and development work in throwing silk and rayon yarns conducted in the practical machine shop of this company; also describes new development in bobbin covers.

13. Mill Crayons. American Crayon Co. New cellophane-covered color chart for company's line of textile mill crayons shows actual chalk crayon markings.

14. Corrosion-Resistant Metals. International Nickel Co. Bulletin describes uses of Monel and other nickel alloys, with particular reference to peroxide bleaching and citing practical experiences with such bleaching; illustrations show company's product in textile mills.

15. Counting and Registering. Durant Mfg. Co. Folder shows photographs of stroke, revolution, lineal measuring counters, and tachometers, giving descriptions and specifications of company's line of Productimeters.

16. Heating. Trane Co. 36-page bulletin on heating specialties describes growth of company through half-a-century, and development of wide range of traps, valves, strainers, and other

(Continued on other side)

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BUSINESS REPLY CARD

FIRST CLASS PERMIT NO. 64, SEC. 510 P. L. & R. NEW YORK, N. Y.

TEXTILE WORLD

330 West 42nd Street

New York, N. Y.

(*Continued from opposite side*)
equipment; dimensional and other data included.

17. Pumps. Roots-Connorsville Blower Corp. Folder describes various industrial applications of company's Type T turbine pumps, with full construction information and table of ratings and specifications.

18. Welding and Cutting. Linde Air Products Co. 60-page booklet, "Everything for Oxy-Acetylene Welding and Cutting," lists distribution, sales and service facilities of this company also offering other information about Linde Products.

19. Mill Villages. Harnischfeger Corp. Art-illustrated brochure gives details on construction of pre-fabricated houses; special section shows house being erected in record time of 8 hours.

20. Lighting. Benjamin Electric Mfg. Co. Revised edition of catalog No. 26 includes data on latest improvements and lighting developments of 1937; volume comprising 352 loose-leaf pages presents encyclopedic information on industrial lighting, flood lighting, and signals.

21. Spraying. DeVilbiss Co. Bulletin describes new improved Rotary spray-finishing machine, Type YB, for high-speed automatic finishing of small- and medium-sized articles; has production capacity exceeding 3,600 finished, small light articles per hour.

22. Yarn. Rayon Division, E. I. du Pont de Nemours & Co. November *Du Pont Magazine* has article by Stella Epstein on "Decorative Fabrics," describing latest textile products made from spun rayon yarn, including upholstery, furnishings, and domestics.

23. Instruments. Foxboro Co. Folder explains significance of seal of certification now attached to all instruments made by this company; 20 illustrations show instruments representative of full line.

24. Air Conditioning. Parks-Cramer Co. October *Parks' Parables* discusses "Humanizing Spinning," with particular reference to production policies of Avondale Mills, and presents photographs and data on various types of air-conditioning equipment.

25. Warp Sizing. Chas. B. Johnson. October *Rayon Warp Sizing Specialist* takes for text of its main editorial the article "300 Million Mark" by Douglas G. Woolf in September, 1937, issue of TEXTILE WORLD. Posing the question "is your equipment flexible enough?" The editorial stresses the vital need for flexibility in rayon equipment due to industry's rapid development.

26. Maintenance Equipment. Haynes Stellite Co. Booklet entitled "Haynes Stellite Library" lists and describes 18 books, reprints, and folders issued by this company dealing with hard-facing alloys, cutting tools, and alloys for chemical processing equipment.

27. Pumps. Worthington Pump & Machinery Corp. Bulletins give data on company's new line of pressed steel frame mounted ball-bearing centrifugal pumps; illustrations show sectional views of equipment.

28. Control Instruments. C. J. Tagliabue Mfg. Co. Large number of data sheets showing diagramatically application of temperature and other control instruments to warp sizing, wool scouring, carbonizing, soaking, dyeing, and other types of equipment; sheets also give information on correct type of control for each application. Requests should be for separate sheets on specific operations.

29. Valves. Lunkenheimer Co. Thumb-indexed guide for selecting valves, boiler mountings, and lubricating devices covers standard and special-service requirements and includes dimensions and list prices.

30. Dryers. James Hunter Machine Co. November issue of *Hunter Counselor* has articles on stock drying, continuous range cloth carbonizing, uniform extracting and how to reduce rinsing time.

31. Steam Traps. Sarco Co., Inc. Booklet discusses correct steam trap selection and low-pressure heating systems and explains services and advantages of company's line of steam traps and accessories in a wide range of applications.

32. Water Purification. Philadelphia Quartz Co. Booklet, "How to Cure Rusty Water," discusses application of "Rusticon: Silicate of Soda" for this purpose and lists other uses of this compound.

33. Dyes. Ciba Co., Inc. October issue of *Ciba Review* is devoted to India, its dyers and color symbolism, and has articles on growth of Indian dyeing industry; also technical and scientific notes.

34. Wool Processing. Frosted Wool Process Co. Booklet describes the frosted wool process, its functions, advantages, and applications, and lists nineteen benefits of this method; another booklet contains reprinted article on frosted wool for scoured wool by L. Stearns Gay.

35. Chemicals. Grasselli Chemicals Dept., E. I. du Pont de Nemours & Co., Inc. Booklet describes properties of trisodium phosphate, listing its various advantages and applications.

36. Water Softener. Creative Chemical Co. Booklet describes company's new compound, Watertone, explaining its chemical action, advantages and various of its industrial applications.

37. Motors. Century Electric Co. Booklet gives information on electrical characteristics and descriptions of all types of fractional-horsepower motors with suggestions on applications to meet specific needs.

Circle wanted numbers . . . . Fill out blanks . . . . Mail

TEXTILE WORLD

Please have the manufacturers send me, without obligation, the literature circled below. (Numbers correspond to descriptive paragraph numbers.)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37

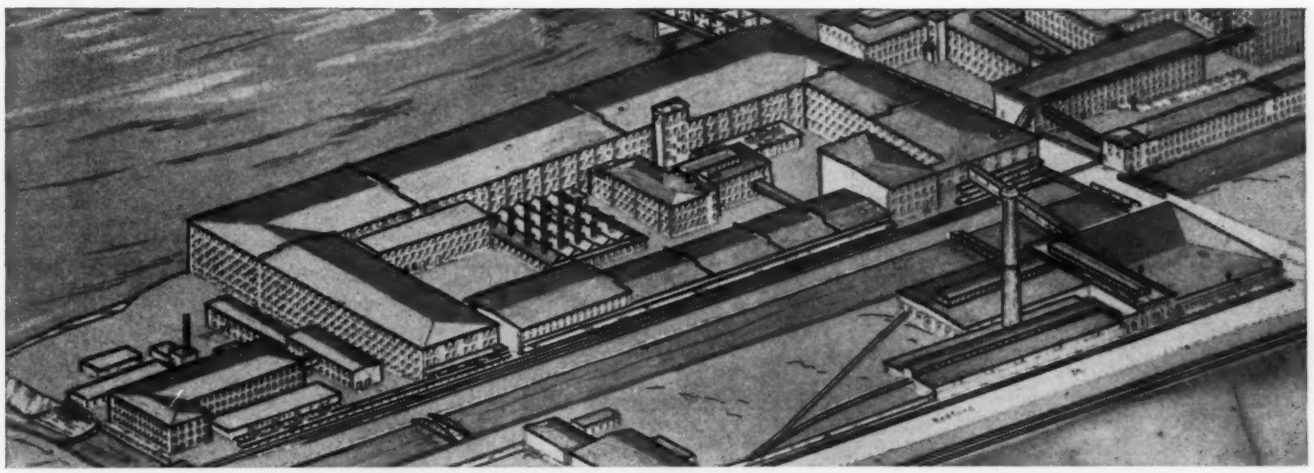
NAME_____ **POSITION**_____

ADDRESS_____

COMPANY_____

AMOSKEAG INDUSTRIES INC.

An Invitation to PROFITS



A Complete 200-Loom Worsted Plant

from Scouring to Finishing -- Either as a Single Unit or Sub-divided for Top, Spinning, Weaving or Finishing.

Only 55 miles from Boston, 248 from New York, Manchester, New Hampshire is at the threshold of the nation's population center. Here then is a city in which you should locate. And, here is a location, already set-up for manufacturing top, spinning, weaving, dyeing and finishing. Here is a building of over 500,000 square feet, with an adjacent steam plant for low cost power and heat! Subdivisions can be arranged as follows:

- **SCOURING, carding, combing units from 35,000 to 75,000 pounds weekly. Modern Sargent wool washers; wide Platt, Davis & Furber Cards; French combs; Intersecting Gills.**
- **SPINNING UNITS—from 3,000 to 15,000 spindles. Motor driven Prince-Smith and Saco-Lowell frames; Prince-Smith drawing with ring rovers.**
- **WEAVING UNITS—from 50 to 200 looms with 78″-82″ Crompton & Knowles motor driven Automatic looms and 72″ motor driven Draper looms with C & K heads.**
- **FINISHING UNITS—will be arranged to suit purchaser.**

If you are interested in a large or small unit, either for the entire worsted process; or interested in the manufacture of top, spinning, weaving, dyeing or finishing, investigate this opportunity now. Manchester offers plentiful, trained, skilled help—advantageous city and State taxes, and sympathetic officials—low cost electricity and gas—and accessibility to raw materials and markets.

Write for a copy of

"YOUR SHARE of the FIVE MILLION"

A Presentation of Amoskeag Property to sell or lease.

FOR DETAILED INFORMATION, SPECIFICATIONS, PRICES—ADDRESS

MANCHESTER AMOSKEAG COORDINATING COMMITTEE

MANCHESTER NEW HAMPSHIRE

It's a **"CELLOPHANE"** *dress for th*

FIVE YEARS isn't long in Cannon history, but it has brought about many revolutionary package changes. More and more of the growing Cannon family are appearing on the market in "self-demonstrating" packages of Cellophane cellulose film (the last count shows 134 units).

Not just because Cellophane enhances quality appearance and prevents soilage due to handling. But because Cellophane plus distinctive, colorful labels fits perfectly into modern sales and merchandising plans.

Each label contains a selling message for the product inside—and the Cellophane lets shoppers *see* the product they read about.

Small wonder these attractive products are winning such acceptance from retailers and shoppers! Even the babies of the Cannon family—the silk stockings—have rompers of Cellophane.

And how they're romping across the counter!

the famous Cannon family—

MODERN PACKAGING FOR MODERN SELLING

One of our Field Representatives will be glad to help you work out a new package for your product. No obligation. Just write: E. I. du Pont de Nemours & Co., Inc., "Cellophane" Division, Wilmington, Delaware.

Cellophane
TRADE MARK

DU PONT
REG. U. S. PAT. OFF.

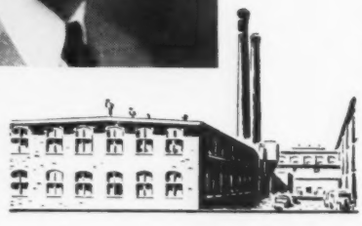
"Cellophane" is a trademark of E. I. du Pont de Nemours & Co., Inc.

You'd turn off a

Comer Turley, mechanical superintendent, Pepperell Mfg. Co., Lindale, Georgia

It paid Pepperell to replace antiquated, deficient electric wiring

With approximately 2,000 motors in the plant of Pepperell Mfg. Co. at Lindale, Ga., burn-outs have been so reduced by installing over-size feeders that in five years there has not been a single case of rewinding on a spinning-frame, loom, or card-room motor because of overload. "The practice of installing over-size feeders is good insurance and saves on power bills," says Comer Turley, Mechanical Superintendent, "yet it involves only a small additional investment since labor cost is the same. We design feed lines for a load from 50% to 100% greater than immediate requirements."



Anaconda Wire &

General Offices: 25 Broadway, New York • Chicago Office: 20 North Wacker Drive

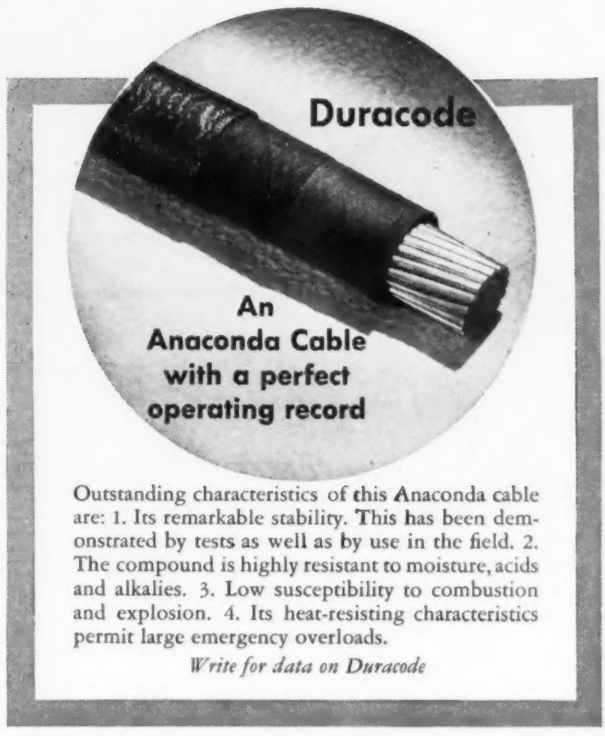
a dripping faucet

—why not stop invisible electrical leaks?

Neglecting electrical circuits costs factory owners thousands in breakdowns . . . high power bills

YOU can *see* a faucet dripping. But an overloaded electric circuit may be wasting money in the form of heat losses without your ever knowing it. Only the treasurer, wondering why bills are so high, suspects that something must be wrong.

Heat losses are but one way in which dollars fly out the window needlessly when electrical circuits are neglected. Frequent breakdowns are another. Men and machines stand around idle. Or, voltage drops reduce machine output. Lumped together, the damages the industrial plant suffers from antiquated, deficient wiring are often enormous. And authorities estimate that *nine out of ten industrial plants today are being penalized because of obsolete electric wiring!*



Outstanding characteristics of this Anaconda cable are: 1. Its remarkable stability. This has been demonstrated by tests as well as by use in the field. 2. The compound is highly resistant to moisture, acids and alkalies. 3. Low susceptibility to combustion and explosion. 4. Its heat-resisting characteristics permit large emergency overloads.

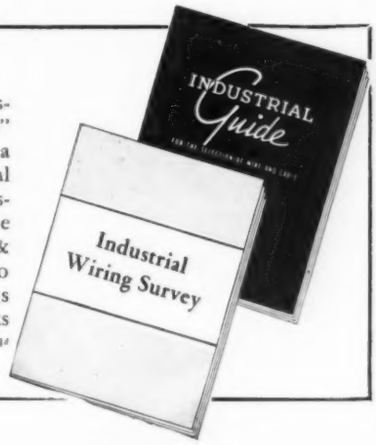
Write for data on Duracode

Safeguard your plant

A wiring survey will cost you nothing and may save you thousands of dollars. We offer here a complete plan for such a survey. The books shown at right give you everything you need to initiate a check-up of your plant's circuits. New, informative, they are being used by hundreds of manufacturers. Send for them today.

If you have a specific problem in mind, consult our Engineering Department. We will cooperate without obligation. Why not take advantage of the many important improvements in cable design pioneered by Anaconda Wire & Cable Co.? Let us tell you about them.

FREE! The "Industrial Wiring Survey" tells how to make a check-up of electrical circuits. The "Industrial Guide for the Selection of Wire & Cable" tells how to correct conditions found. Both books will be sent free. 3784A



Cable Company

Sales Offices in Principal Cities

ANACONDA
from mine to consumer

Another specific example of economy and increased efficiency effected by Taylor Completely Engineered Automatic Temperature Control in the Slasher Room

HERE is a mill producing approximately 3,000,000 pounds of print cloth a year in 48x40, 64x60 and 68x72 construction. It operates four slashers.

In an effort to reduce production costs further, increase weave room efficiency and assure maintenance of uniform weight and quality of its cloth, executives decided to investigate automatic slasher control. They called in a Taylor representative because they knew of the successful operation of Taylor Systems of Temperature Control in slashing rooms of other mills.

Taylor engineers made an exhaustive study of the entire slashing process. They recommended a unified system of temperature control and installed it as an integral part of the slasher. THE MILL SAVED $12,000 IN A YEAR AS A RESULT OF INCREASED WEAVE ROOM EFFICIENCY AND COTTON SAVINGS ALONE.

As a result of the Taylor survey the size concentration was decreased. BUT the solids content of the yarn (or the size deposit on the yarn) was increased 1.4% on the average.

A 20% decrease in loom stoppages resulted in a 1% increase in weave room efficiency. This accounted for $8,800 of the total saving.

$4,000 COTTON SAVING

The Taylor System of Control was responsible for the saving of an equivalent of 58 bales of cotton during the year. At the then market price this amounted to nearly $4,000. No figure was available on the saving on coal used, but it was considerable and should be added to the total saving. The Taylor System of Automatic Slasher Control much more than paid for itself in this first year and paved the way for increased profits.

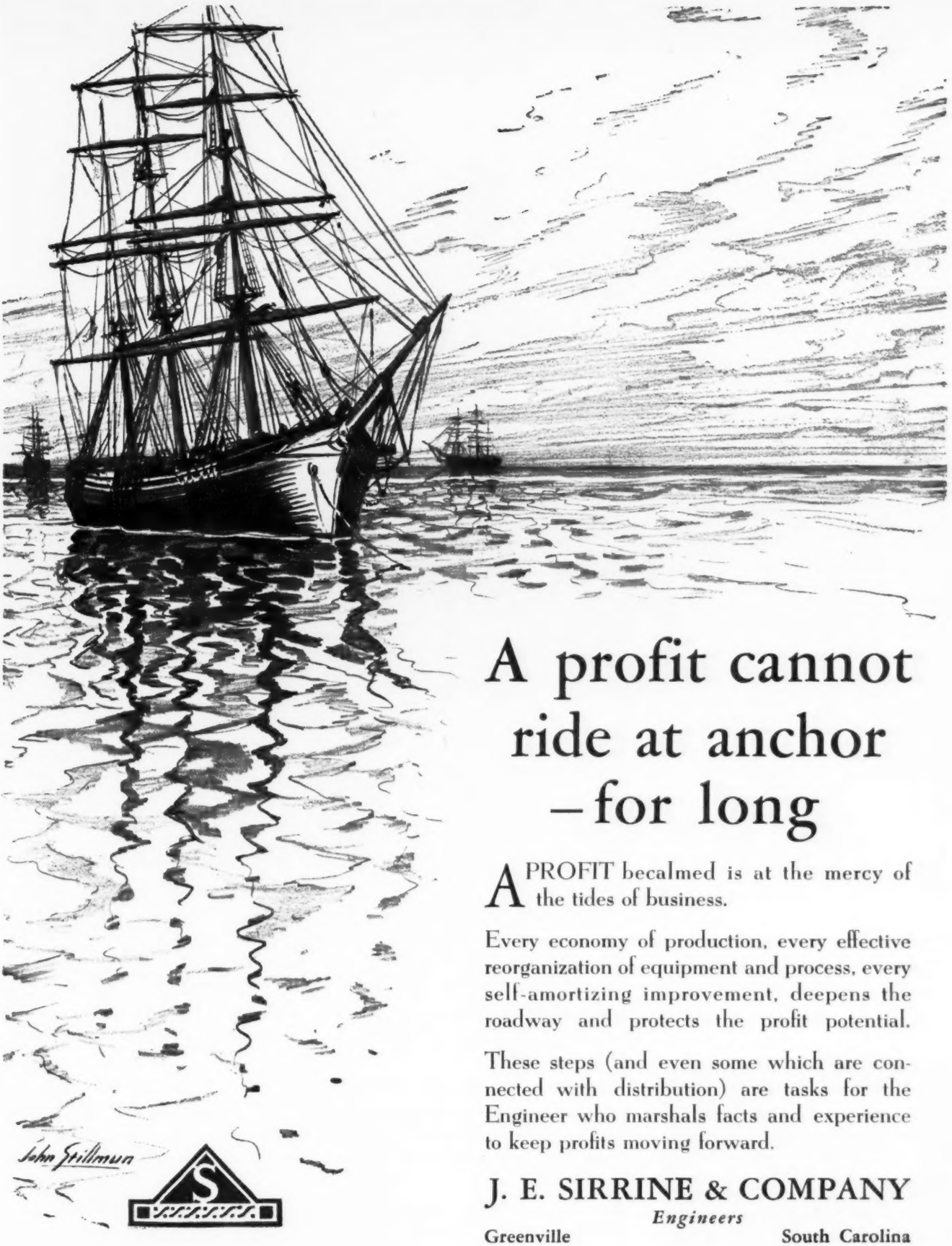
There are plenty of textile mills in the United States today that can tell stories of large economies, faster production of more uniform finished goods with corresponding reduction of "seconds," and larger net profits as results of the installation of Taylor Slashing Control. Taylor engineers today have the experience of nearly fifteen years in the designing and installing of these systems. Their success is the result of applying this experience to the specific requirements of each individual mill.

Whether the slashing room is equipped with the standard two-cylinder slasher or the new Saco-Lowell High Speed Slasher, Taylor Control puts slashing operation on a new low-cost basis and adds greatly to the uniform conditioning of the yarn that goes into finished goods. Ask a Taylor Representative for full information on Taylor Systems of Slasher Control and its application to your mill, or write direct to Taylor Instrument Companies, Rochester, N. Y. Plant also in Toronto, Canada. Manufacturers in Great Britain—Short & Mason, Ltd., London, England.

Taylor

Indicating · Recording · Controlling

TEMPERATURE, PRESSURE, FLOW *and* LEVEL INSTRUMENTS



A profit cannot ride at anchor —for long

A PROFIT becalmed is at the mercy of the tides of business.

Every economy of production, every effective reorganization of equipment and process, every self-amortizing improvement, deepens the roadway and protects the profit potential.

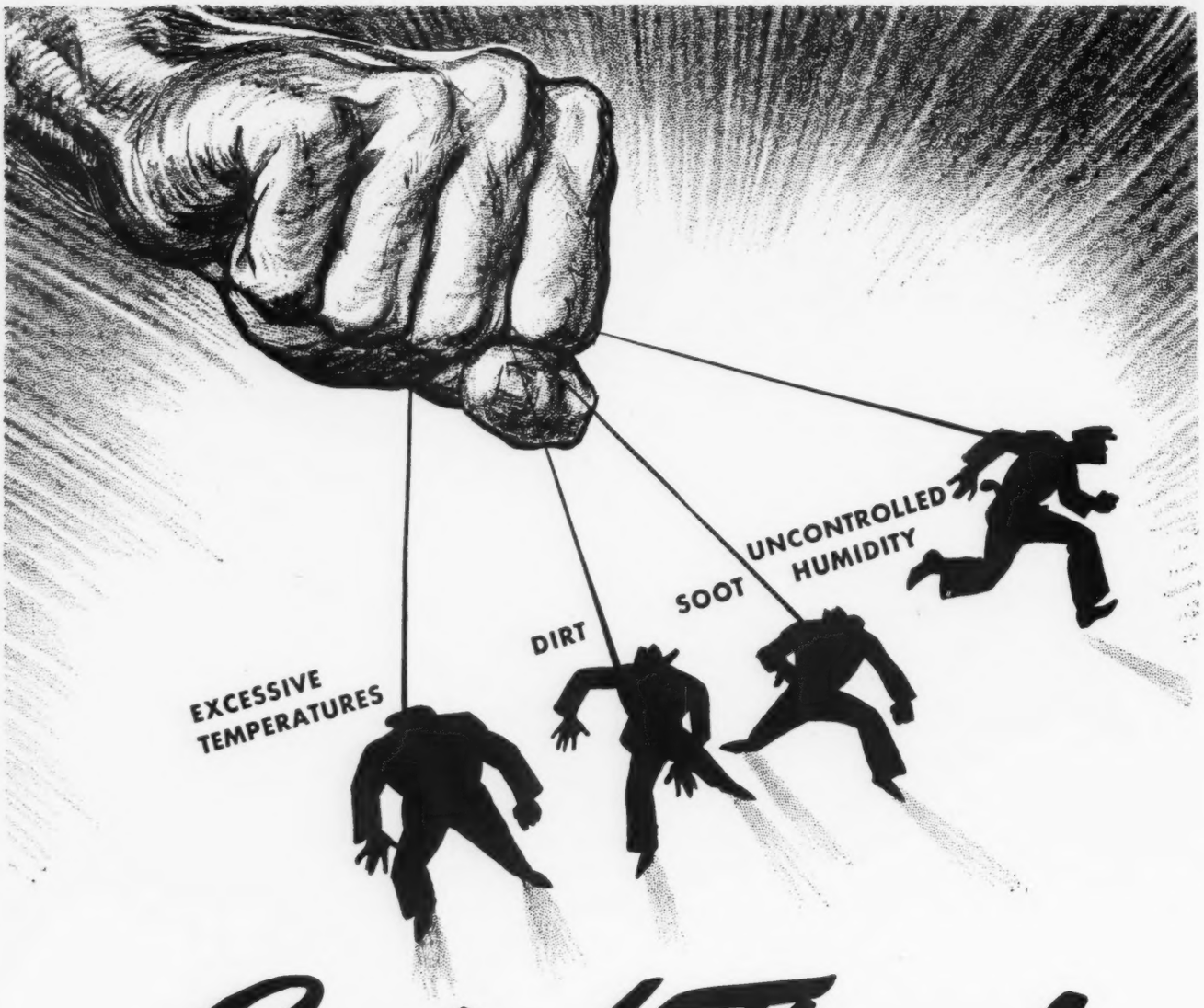
These steps (and even some which are connected with distribution) are tasks for the Engineer who marshals facts and experience to keep profits moving forward.

J. E. SIRRINE & COMPANY

Engineers

Greenville South Carolina

Textile Mills	Paper Mills	Rayon Plants	Tobacco Factories
Warehouses	Appraisals	Surveys	Power Applications
Hydro-Electric	Reports	Steam Utilization	Reorganizations
Power Plants	Steam	Water Treatment	Sanitary Engineering



Control Them!

They reduce or make profits impossible—lower product quality—cause costly spoilage and production delays—take pep and efficiency out of workers. But you CAN bring them under perfect control — with a Sturtevant Evaporative Cooling and Humidifying System.

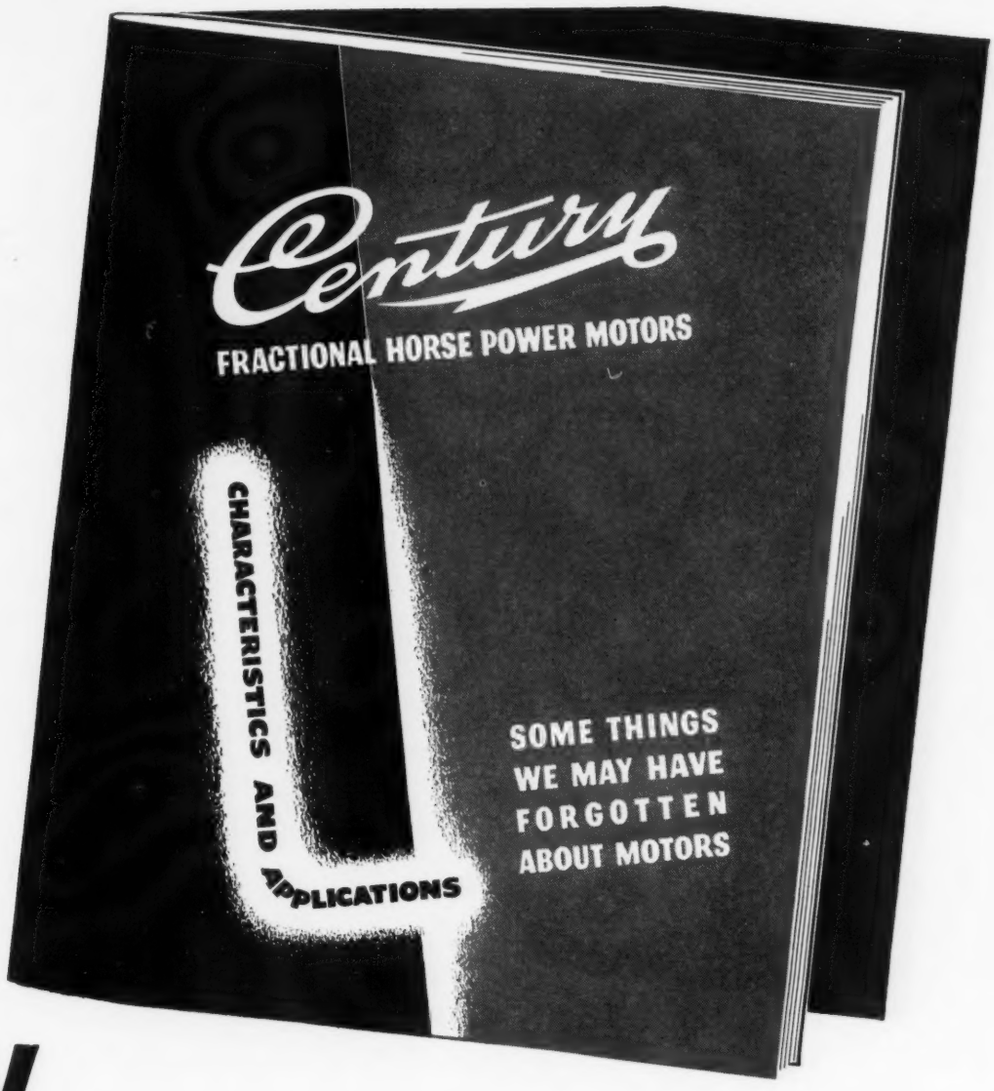
This system ventilates, cools and humidifies in the summer. It ventilates, heats and humidifies in the winter. It rids the air of dust, dirt and soot the year round.

Many companies have installed these Sturtevant Systems with gratifying results. They include Hudson Silk Hosiery Co., Charlotte, N. C., E. M. Holt Plaid Mill, Burlington, N.C., Tubize Chatillon Corp., Rome, Ga., American Enka Corporation, Enka, N. C., and Carter Fabrics Corporation, Greensboro, N. C.

Our 75 years of air engineering experience is at your service. We would be pleased to send further information or have our nearest engineer call and discuss your problems with you.

Sturtevant
Evaporative Cooling
FOR BETTER PRODUCTS
AT LESS COST

COOLING AND AIR CONDITIONING CORPORATION
DIVISION OF B. F. STURTEVANT CO., HYDE PARK, BOSTON, MASS.
ATLANTA · CAMDEN · CHICAGO · GREENSBORO · NEW YORK


Century
FRACTIONAL HORSE POWER MOTORS
CHARACTERISTICS AND APPLICATIONS
SOME THINGS WE MAY HAVE FORGOTTEN ABOUT MOTORS

THIS BOOK *tells..*

HOW *to* SELECT *the* RIGHT MOTOR

This New 24-page book will be of real assistance to you . . . Here is presented in helpful form information concerning the electrical characteristics of all types of Fractional Horse Power Motors—and suggestions as to how they can be most effectively applied to meet the requirements of motor-driven machinery and appliances operating in normal or abnormal surroundings . . . Fully illustrated . . . Send for your copy, if you have not received it . . . **ASK FOR BULLETIN 1039-C . . .**

CENTURY ELECTRIC COMPANY

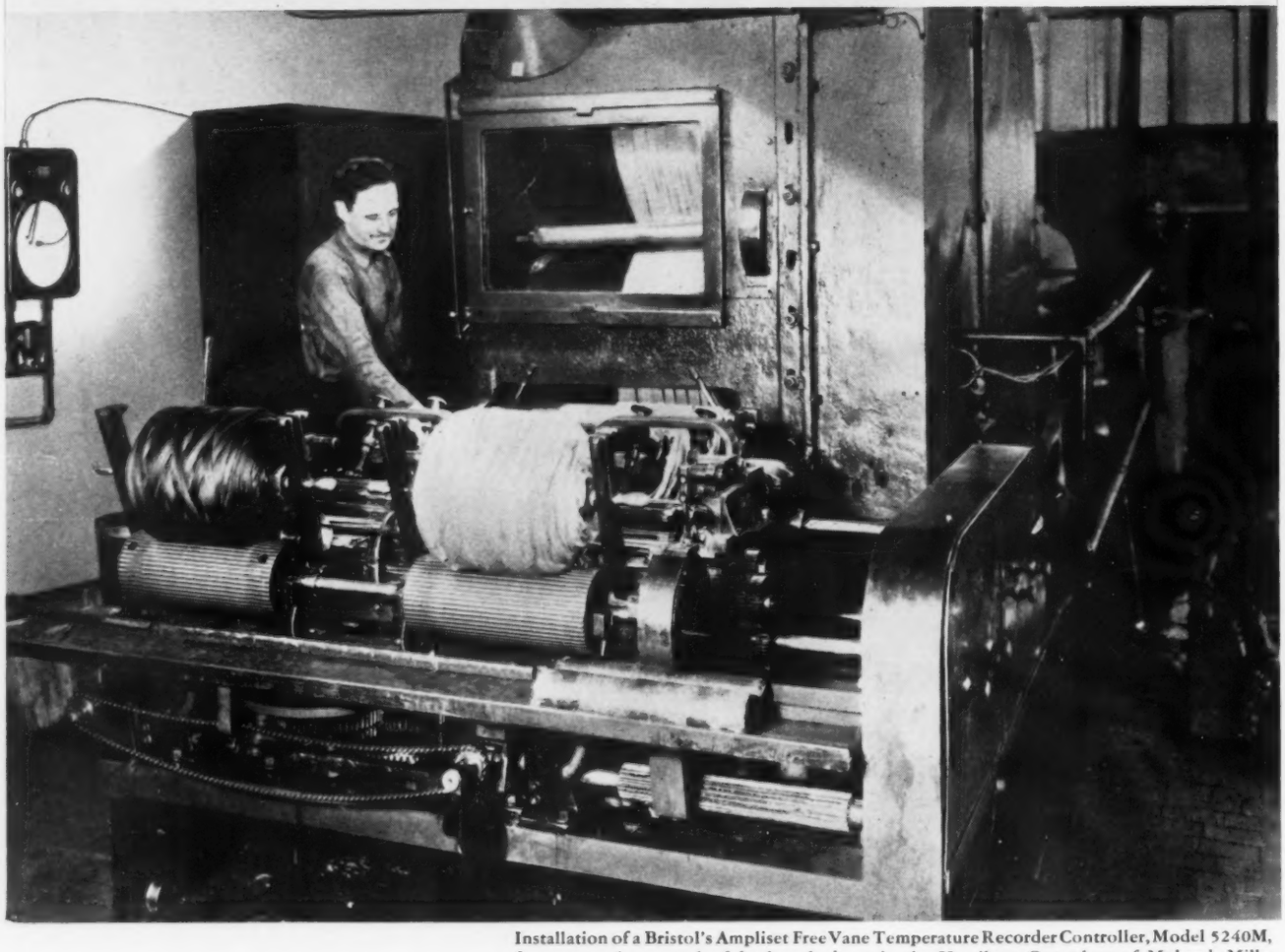
1806 Pine Street . . . . St. Louis, Mo.

Offices and Stock Points in Principal Cities

Century MOTORS

UP TO 600 HORSE POWER

HERE
$84.00 *monthly steam saving*
FROM BACKWASH DRYER TEMPERATURE CONTROL



Installation of a Bristol's Ampliset Free Vane Temperature Recorder Controller, Model 5240M, for automatic control of backwash dryer in the Hamilton, Ont. plant of Mohawk Mills.

GREATER PRODUCTION, UNIFORM DRYING, IMPROVED WOOL QUALITY ALSO SECURED

IN FACT, the mill in which this Bristol's Temperature Controller is installed tells us that since "the improvement in wool quality is so great, it would continue to use the Bristol's Controller even if steam costs had been increased instead of decreased."

Perhaps there are one or more applications in your own plant where excessive temperatures are running up steam consumption and impairing product quality. Or where too low temperatures are resulting in incomplete processing.

In all such instances, Bristol's Automatic Temperature Control deserves serious consideration. As in the mill herein referred to it often pays for itself in a surprisingly short time.

Put your temperature processing problems up to us. We can help.

THE BRISTOL COMPANY, WATERBURY, CONN.
Branch Offices: Akron, Birmingham, Boston, Chicago, Detroit, Los Angeles, New York, Philadelphia, Pittsburgh, St. Louis, San Francisco, Seattle. Canada: The Bristol Company of Canada, Limited, Toronto, Ontario. England: Bristol's Instrument Company, Limited, London, N.W. 10.

BRISTOL'S

TRADE MARK REG. U.S. PAT. OFF.

Give the little girl a **hand**

If ever there was a girl in distress it's a spinner that has to run machines and clean them at the same time. She just can't do it—and do it right.

You can give your spinners a hand—and get top production in return for the favor—by cleaning your frames with Parks Automatic Traveling Cleaners. Spinners, then, do nothing but spin. Machine stoppage, breakage, seconds are reduced. And the cleaning is far better, more regular than ever before. Slugs, gouts and bunches are eliminated.

Once installed in your mill you find that Parks Automatic Traveling Cleaners make excellent investments. They pay for themselves before long. And the two types available overcome installation troubles. One, the Parks Turbo Traveling Cleaner, is mounted on creel boards. The other, the Bunchless Automatic Cleaner, runs on single rails suspended from the ceiling. Both of these are completely automatic—they clean as they travel. Both give the same results. Send coupon for complete information.

Gentlemen: Please send me Bulletins on Parks Automatic Traveling Cleaners ☐ You may have an engineer call ☐
(Please check)

Name .....
Company .....
Address .....
City .....
State .....

PARKS *Traveling Cleaners*

PARKS-CRAMER CO., FITCHBURG, MASS....CHARLOTTE, N. C.

Why Heat All Outdoors?

CUT ROOF HEAT LOSSES 35% TO 75% WITH

CELOTEX

REG. U. S. PAT. OFF.

ROOF INSULATION

The big, thick boards of Celotex Roof Insulation are readily applied to new and existing buildings, and provide a permanent base for built-up roofing.

Save Fuel Every Winter and Improve Working Conditions

YOU can make important fuel savings in your mills and increase the comfort and efficiency of your workers at very moderate cost—by installing Celotex Roof Insulation.

Each heating season you can save from 1¼ to 9 tons of coal per 1000 square feet of roof area—depending upon the heating job, roof construction, and thickness of Celotex applied. One inch of Celotex Roof Insulation cuts roof heat losses 50% to 74.5%!

Condensation Prevention

Where high humidities are maintained, Celotex gives vital protection against moisture condensation. It preserves roofs from damage due to expansion and contraction of roof decks. And, in air-conditioned buildings, it keeps operating costs down.

Celotex is the only roof insulation that is made from Louisiana Cane Fibre—nature's strongest insulating fibre—and protected against termites and dry rot by the patented Ferox Process (exclusive). Send the coupon today for full information.

Sales Distributors Throughout the World

THE CELOTEX CORPORATION TW 12-37
World's Largest Manufacturer of Structural Insulation
919 N. Michigan Ave., Chicago, Ill.

Please send me full facts on Celotex Roof Insulation, including tables showing heat and fuel savings.

Name.....

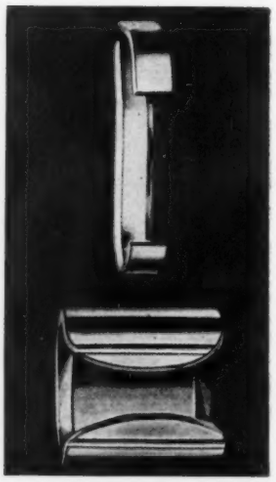
Address.....

City.....

County.....*State*.....

Check these 4 features

of the BOWEN PATENTED BEVEL EDGE TRAVELER



1. Smooth even yarn

2. NO FLY WASTE in spinning, twisting

3. NO SPLIT ENDS throwing real or artificial silk

4. NO ANGULAR EDGES to flatten the ends

ALSO . . . THEY are uniform in weight and temper. They are made to meet every requirement for the Spinning and Twisting of all fibres . . . And right here the spinner changes to the BOWEN PATENTED BEVEL EDGE and UNIVERSAL STANDARD RING TRAVELERS for results.

U. S. Ring Traveler Company

Providence, R. I. Greenville, S. C.

AMOS M. BOWEN, *President and Treasurer*

Sales Representatives

NEW ENGLAND
Herbert Smith
Carl W. Smith

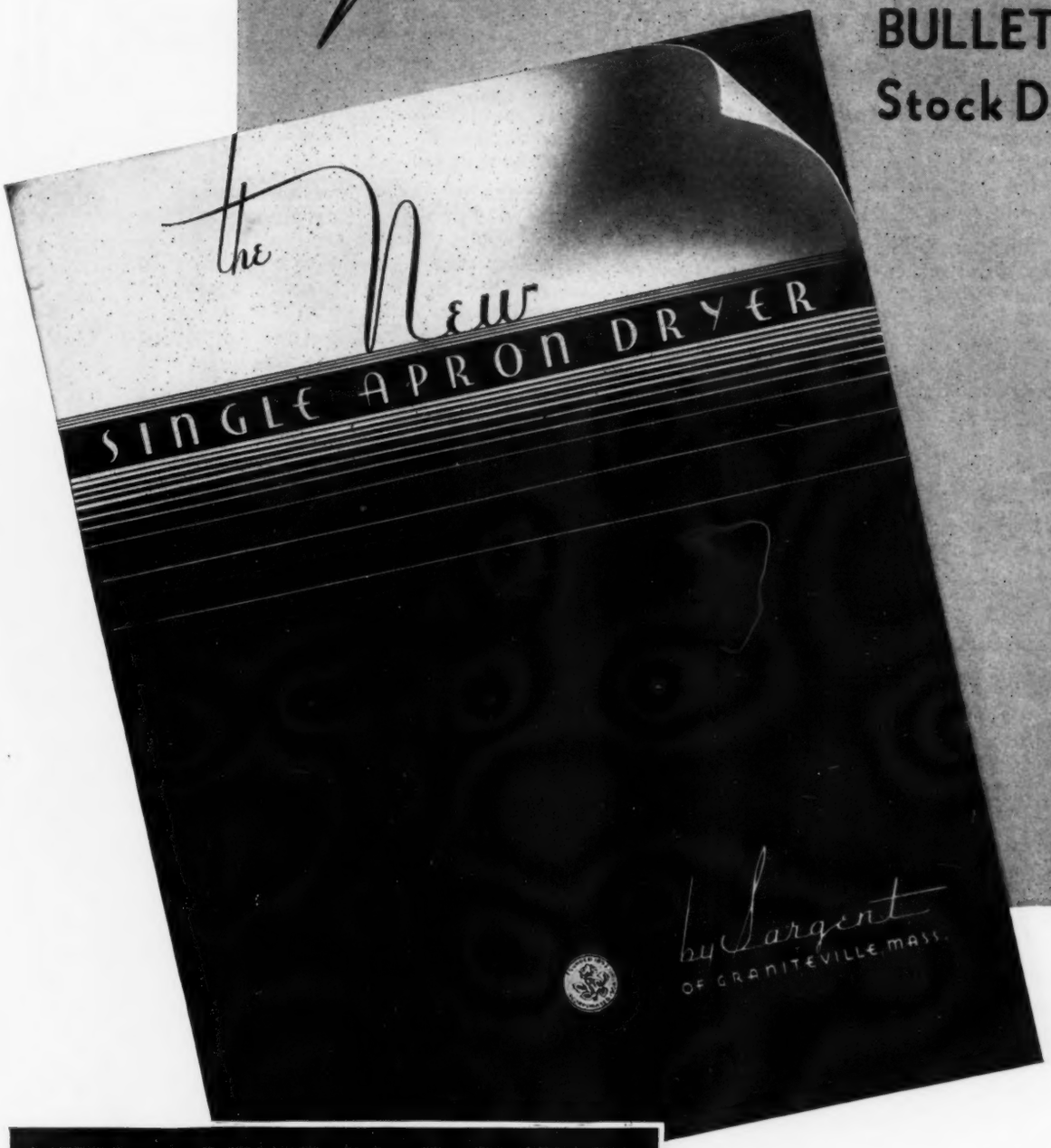
MID-ATLANTIC
M. Lee Bolton

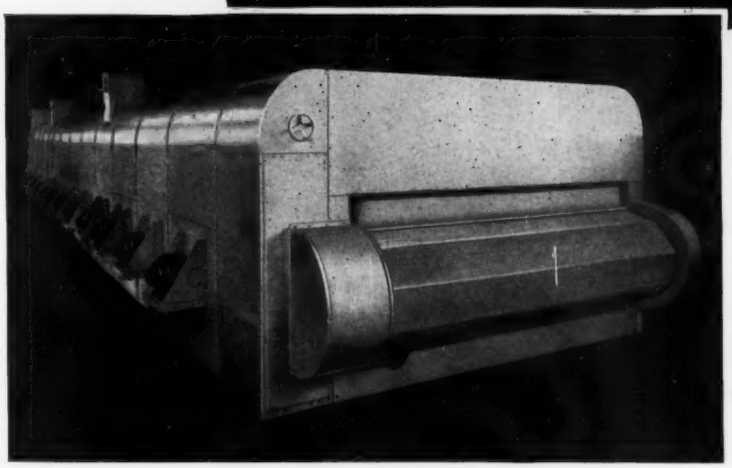
SOUTHERN
William P. Vaughan
Oliver B. Land
Torrence L. Maynard

A Traveler for Every Fibre

You Should Have This

BULLETIN on
Stock Dryers





An up-to-the-minute Dryer designed to give the largest capacities in a minimum floor space, and showing decided savings in horsepower and steam consumption. Available in both single and double fan types.

•

C. G. **SARGENT'S** SONS CORPORATION
GRANITEVILLE, MASSACHUSETTS

Textile Industry

CAN AVOID NEEDLESS RISKS

Credit losses are a constant threat in the textile industry. Why take needless risks? Why not insist on an airtight guarantee that you will be paid for yarns or textiles shipped on regular terms?

Your customers, of course, will never offer such a guarantee—the good ones would resent the idea and the doubtful ones couldn't furnish any guarantee—but Credit Insurance can—*and does*. No matter what financial disasters may befall your debtors, if you have sold under the terms of your policy you are reimbursed for credit losses. Your receivables are as good as cash; your capital is intact and *working for you*. Is that not good business?

A yarn jobber (name on request) in acknowledging check, settling a sizeable claim, wrote: "It is gratifying to have received so prompt a settlement in view of the fact that the difficulties of this concern are still in the hands of the courts."

All types of accounts, from Individual Debtors to all debtors, are now insurable on very liberal terms. Any "American" representative will inform you fully.

American Credit Indemnity Co.
of New York **J. F. McFadden, President**

Chamber of Commerce Bldg., St. Louis, Mo.

Offices in all principal cities of United States and Canada

V37

Stop **LUBRICANT LEAKAGE WITH**

You run no risk of product spoilage from leaking lubricant when your machines are equipped with Chicago Rawhide "Perfect" Oil Seals.

These seals hold oil or grease in the bearings, prevent leakage and eliminate danger of foreign substances such as moisture and dust from entering the bearing housing. Thus you not only avoid spoilage of cloth in process but you add materially to the life of your machines and reduce both lubricant costs and maintenance expense.

Ask Chicago Rawhide engineers for their recommendations in applying oil seals to your equipment.

PERFECT Oil Retainer PATENTED

CHICAGO RAWHIDE MANUFACTURING CO.
1284 ELSTON AVENUE • CHICAGO, ILLINOIS
59 Years Manufacturing Quality Mechanical Leather Goods Exclusively
PHILADELPHIA • CLEVELAND • NEW YORK • DETROIT • BOSTON • PITTSBURGH • CINCINNATI

MR. JONES, HERE'S THE REPORT ON THE TEST RUN SUGGESTED BY THE C.P.P. MAN
SAY, FRED, DO YOU REALIZE THIS MEANS A SAVING OF THOUSANDS EVERY YEAR? WHY DIDN'T WE TAKE ADVANTAGE OF THAT BEFORE?

$30.00 A DAY SAVED!

Read how C. P. P. Products and the free C. P. P. Consulting Service helped this manufacturer cut rayon processing costs

RECENTLY, a large rayon processor decided something had to be done about his operations. Costs were excessive and continually going up . . . profits were getting smaller and smaller.

He called in a C.P.P. Consultant . . . explained just what his problems were. In a few days suggestions were submitted. A C.P.P. Soap was recommended instead of the "special" product he had been using. Test runs were made in the plant. The result: A saving of over *thirty dollars* a day!

This service has helped others —it can help you, too

This case is not unique. It is but one of many in our files showing how C.P.P. Products and Service have helped manufacturers effect substantial savings . . . produce quality merchandise, at economical cost.

Scouring and wetting agents of uniform quality for every need

And remember, no matter what your requirements, there are C.P.P. Soaps and other agents to fit your needs. Standardizing on the C. P. P. line will save you money and increase your percentage of top-price goods!

Because C.P.P. Textile Products are consistent in uniformity and quality, they usually cost less to use. You'll find it will pay to investigate *all* the products in the line.

Why not get in touch with us? Write us explaining your problems. Our specialists will be glad to cooperate . . . help you choose the best processing agents for your needs. We'll send full information, free.

COLGATE-PALMOLIVE-PEET CO.

105 Hudson St., Jersey City, N. J.

Factories located at

Jersey City, N. J. **Kansas City, Kans.** **Jeffersonville, Ind.** **Berkeley, Calif.**

A & J dryers

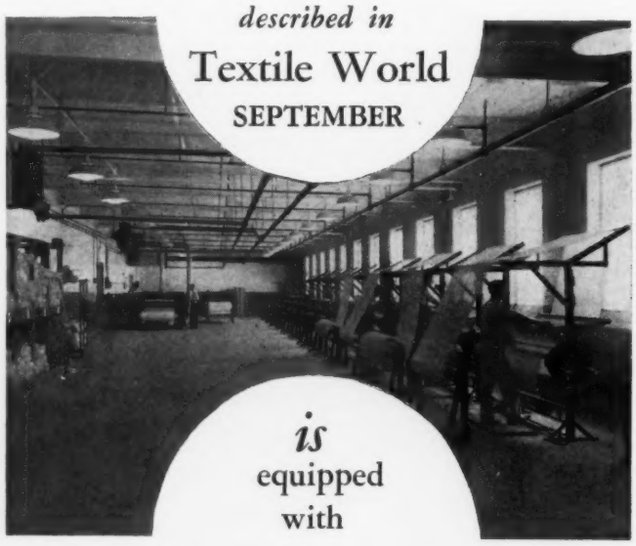
FOR EVERY TEXTILE NEED

- MORE YARDS PER MINUTE
- LOWER COSTS PER YARD

ANDREWS *and* GOODRICH *Inc.*
BOSTON (DORCHESTER) MASS.

"*The* Rayon Mill of the year"

described in
Textile World
SEPTEMBER



is
equipped
with

HERMAS

EXAMINING and MEASURING MACHINES

selected by

CARTER FABRICS CORP.

The choice of HERMAS Equipment exclusively for the cloth room of this ultra-modern model rayon mill at Greensboro, N. C., is significant—for Carter picked everything necessary to turn out the highest quality goods with maximum efficiency. The 12 HERMAS measuring and inspecting tables were designed especially for this mill—but now they are listed as standard HERMAS Equipment.

The largest mills in the country use HERMAS Equipment for rayons, silks, cottons, knit goods, elastic web. This equipment includes Automatic Shears with electric seam protector and stop motion. Brushes, Sewing and Feeding, Rolling, Inspecting, Reel and Tube Winding Machines. Ball bearing spreaders, paper tube winding bars. Knit goods, and Elastic Web Winding Machines.

- **A real Engineering Service**

Let us work on your particular cloth room problem as we did with Carter . . . hanging threads, measuring, inspecting, or tubing, etc. No charge for this Engineering Service. Simply write us today and arrange an appointment.

- ***Cloth Room and Special Machinery***

HERMAS MACHINE CO.

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Southern Representatives
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GARDINOL*

REG. U. S. PAT. OFF.

Makes flower Prints "Garden-Fresh"

Fatter pay checks mean fatter pocketbooks —more money to buy better things, better quality silks and rayons. More and more women are insisting on getting the best—in fabrics and in colors!

GARDINOL, with its gentle, thorough, cleansing action, has less tendency to bleed sensitive colors than ordinary soap. Alkalinity is completely eliminated in the soaping, producing truer colors, clearer whites, more beautiful fabrics—and greater sales! And all at no increase in cost.

A representative of any of the sales agents listed below will be glad to explain more fully how you can produce better fabrics by using a better cleanser —GARDINOL.

GARDINOL CORPORATION, GENERAL OFFICES, WILMINGTON, DELAWARE

SALES AGENTS

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National Aniline & Chemical Co., Inc., N. Y. C.

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***GARDINOL WA**

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(*Patented)

AVAILABLE IN BOTH FLAKE AND PASTE FORM

"Gardinol" is the registered trade mark used by the Gardinol Corporation to designate its sulfated higher alcohols.

WATER SOFTENING ZEOLITES

of greatest durability and highest efficiencies

Hungerford & Terry, Inc. thru their subsidiary, Inversand Company, manufacture three greensand base water softening zeolites and one iron removal zeolite.

BASEX A—The standard hard, durable, coarse and uniform greensand zeolite in use by over 1,000 industrial plants. Guaranteed capacity 2800 grains per cubic foot. Used successfully since 1923.

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HI-BASEX—A high quality greensand base zeolite with a high softening capacity of 4500 grains per cubic foot and a guaranteed capacity of 3800 grains per cubic foot when regenerated with only 1.5 pounds of salt. Extensively used for increasing the capacity and reducing the operating cost of existing softening equipment.

FERROSAND—For effectively and economically removing iron and manganese from ground water supplies for textile uses.

HUNGERFORD & TERRY, Inc.

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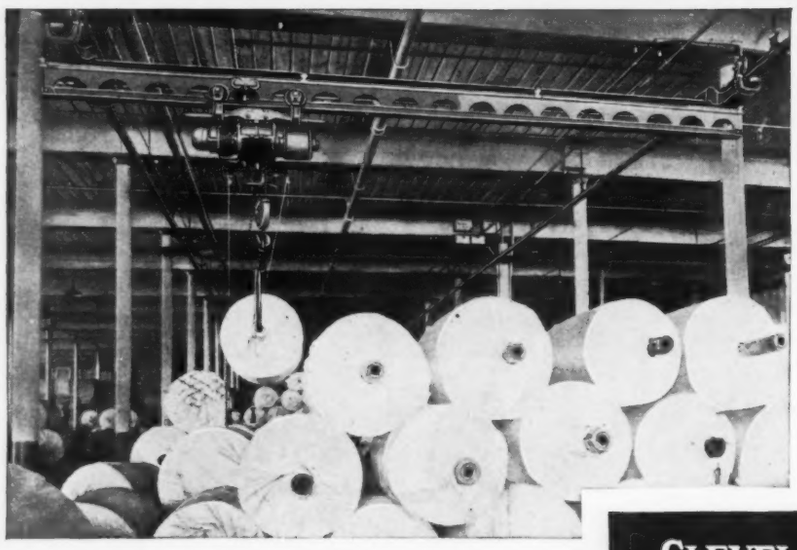
WATER PURIFICATION PLANTS • DESIGNED • CONSTRUCTED • GUARANTEED

OVERHEAD MATERIALS HANDLING EQUIPMENT



• All your roll handlings can be "Safe" by using a Cleveland Tramrail System — Safe for employees, and "Safe" from Damage to product.

Consult your phone directory under Cleveland Tramrail

• Complete Systems for all handlings in all branches of the Textile industry.

CLEVELAND TRAMRAIL

DIVISION OF

THE CLEVELAND CRANE & ENGINEERING CO

1185 Depot St.

WICKLIFFE, OHIO

Thirty-Fourth Annual

Knitting Arts Exhibition

COMMERCIAL MUSEUM • PHILADELPHIA • APRIL 25, 26, 27, 28, 29, 1938 •

UNDER THE AUSPICES OF
NATIONAL ASSOCIATION OF HOSIERY MANUFACTURERS
AND UNDERWEAR INSTITUTE

FOR the entire knit goods trade, the KNITTING ARTS EXHIBITION is the greatest of all meeting places for buyer and seller. Under one roof is concentrated the best creative thought of the industry—the new trade-stimulating ideas and designs, the latest developments in equipment and methods.

The industry's leading manufacturers of knitting, dyeing and drying machinery, mill supplies and allied products, will exhibit their latest designs, processes and mechanical features.

Thousands of the industry's best prospects—the company executives, mill officials, purchasing agents, sales managers, key men of all branches and departments of the trade—will be there to see—to compare—to BUY!

93% of the Exhibitors Repeat Year After Year

For them it is the most economical and effective means of demonstrating their products to the entire knitting trade in one place at one time. They measure the value of the exhibition by the results—and come back every year. The leading manufacturers will be there this year. You cannot afford to stay away.

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The price of a space 100 square feet is only $150, including backwall, side partitions, desk, chairs, rug, hat tree and booth sign—and also electricity or steam if required.

MAKE SPACE RESERVATIONS NOW

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KNITTING ARTS EXHIBITION

925 PARK SQUARE BUILDING
BOSTON, MASS.

CONES
QUILLS, TUBES
for handling all fine yarns
COTTON—RAYON—SILK
A complete, long established line of precision-made Textile Paper Carriers that can be profitably used by every mill demanding a high standard of excellence.
Samples gladly sent upon receipt of specifications.
PAPER DEPARTMENT
The PAIRPOINT Corp
New Bedford, Massachusetts

A *Complete* DYEING SERVICE

PACKAGE • SKEIN • WARP
COTTON • RAYON MIXTURES
and NOVELTY YARNS

Globe's is not a one-sided service.

At Globe Dye Works, each fiber receives the treatment *best adapted to its character and intended use.*

Experience, equipment, trained workers and unfailing attention to detail are behind the unusual quality and service available to you. Whatever your skein, warp or package dyeing needs

YOU CAN RELY ON GLOBE

Dyers, bleachers and mercerizers of cotton skein yarns and warps.

Globe DYE WORKS CO.

Package dyeing on tubes. Dyers of rayon, spun rayon, linen and novelty yarns.

FRANKFORD, PHILA., PA.

A STRONG NEW LINK IN THE SELLING CHAIN

A nation-wide campaign beginning in January, 1938 centers consumer attention on

CROWN RAYON

All important in today's selling is the ultimate consumer. And now, the producer of CROWN RAYON YARN is taking the story of CROWN TESTED QUALITY and fashion direct to that consumer.

Month after month more than 14,000,000 women will read about the new satisfaction to be found in the identified quality of CROWN TESTED RAYON FABRICS, created from CROWN RAYON YARN.

FORWARD WITH CROWN RAYON

CROWN VISCOSE RAYON · CROWN ACETATE RAYON · CROWN RAYON STAPLE

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Lewistown, Pennsylvania Meadville, Pennsylvania
Parkersburg, West Virginia Nitro, West Virginia
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SALES OFFICES

New York City
Providence, Rhode Island Charlotte, N. Carolina
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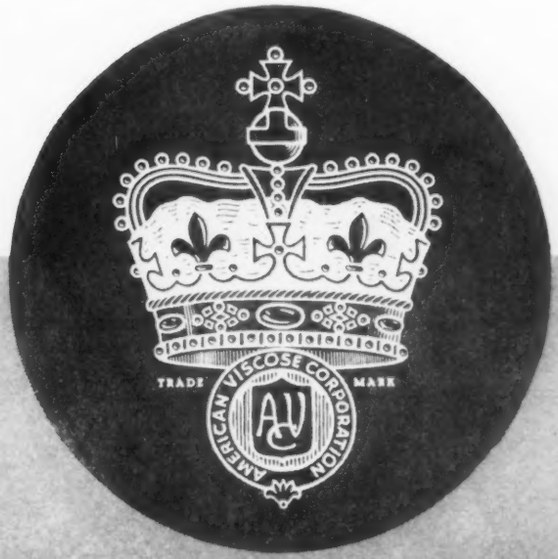
AMERICAN VISCOSE CORPORATION

World's Largest Producer of Rayon

200 MADISON AVENUE, NEW YORK CITY



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MONOMAC SPINNING CO.
Lawrence, Mass.
French Spun Worsted & Merino

ARLINGTON MILLS
Lawrence, Mass.
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CRAMERTON MILLS
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High Quality Carded

WILLIAM WHITMAN COMPANY, Inc.
NEW YORK • BOSTON • PHILADELPHIA • CHARLOTTE

FOR BETTER COMBING
Consult
MILLER
America's Pioneer Circle Makers

In 1870—sixty-seven years ago —we made the first Comb Circles in this country.

Our experience since that time has resulted in Comb Circles internationally famous for Quality and Service.

MILLER-MADE CIRCLES LAST LONGER

WILLIAM MILLER CO.
Established 1870
PROVIDENCE RHODE ISLAND
America's Pioneer Circle Makers

GUARANTEED in weight, temper and style. Back of this guarantee is a 35-year experience, skilled workmanship, specially drawn stock, and an enormous amount of research and experiment in high speed traveler manufacture. Write for samples and prices.

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The Joseph Noone's Sons Company

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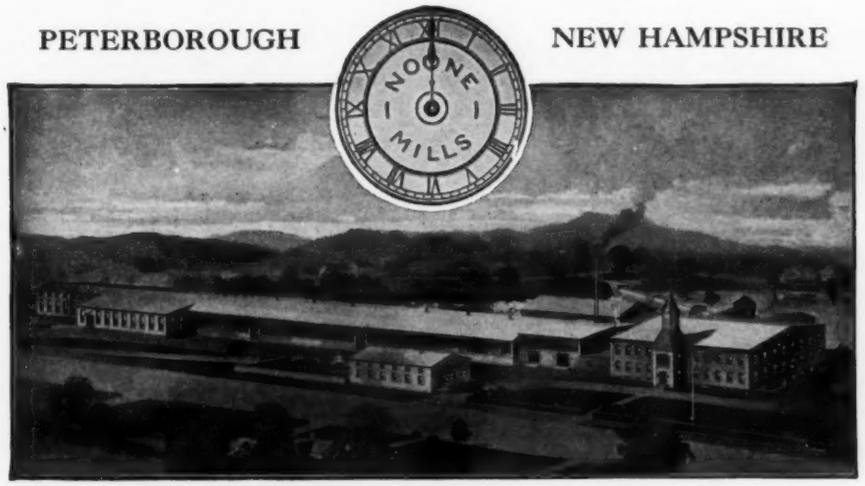

Established 1831

Noone's Standard Roller Cloths

Insist on Noone's Standard Roller Cloths for your Spinning Rolls. Noone's have been Standard since 1831.

Results and costs are what count most.

Use Noone's Roller Cloth and be assured of a Strong Round uniform yarn, the best obtainable. Eventual cost, less than any other covering.

Good spinning can always be obtained when Noone's Roller Cloth is used, as it is the properly built Cloth,—has the correct cushion and consistency, and uniform gauge.

Noone's is best by test.

Many materials have been used for Spinning Roll Covering in years past, but have eventually been discarded in favor of the dependable Woolen Roller Cloth and Leather.

Do not be misled, put your faith in the good Old American Products: Noone's Roller Cloth and leather. If in doubt, allow us to demonstrate the superiority of our Roller Cloth and a leather cot.

Use Noone's Roller Cloths, Noone's Slasher Cloths, Noone's Clearer Cloths.

Noone's are the Pioneers in Mechanical Cloth Manufacturing in America.

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HIGH GRADE CARDED COTTON YARNS

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FINE AMERICAN AND SAKELARIDES COMBED COTTON YARNS

LIMERICK YARN MILLS, INC.

WORSTED, MOHAIR & RAYON YARNS SPUN ON WORSTED SYSTEM

SCOTT TESTERS

For all textile purposes from a single fibre to heavy duck.

We manufacture tensile testers for all textile purposes on both pendulum and constant specimen rate of load types.

We also manufacture twist counters, yarn inspectors, roving measuring reels, and other physical apparatus.

HENRY L. SCOTT CO.

PROVIDENCE, R. I.

DE-SIZING
Rapidase
UNIVERSALLY PREFERRED
FOR DE-SIZING
AT HIGH OR LOW TEMPERATURE
Speedy • Effective • Safe • Economical
WALLERSTEIN COMPANY, INC.
180 MADISON AVE., NEW YORK

COTTON WARPS

Cotton Yarn and Warps . . Single or Ply . . White or Colored . . Carded . . Combed

Novelty yarns—of cotton, worsted, wool, mohair, rayon, silk—in all fashionable combinations and effects and in many original effects. Write for samples.

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MERCERIZE, BLEACH and DYE

Cotton Yarns, Tapes, Braids, Threads, Hosiery, Rubber Linings, etc., Coning, Tubing, Reeling. Bleaching and Dyeing Rayons a specialty.

Direct, Sulphur, Sunfast and Vat dyes, dyed on cotton and rayon

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Standard Grades—Lustrous—Delustred—Superfine

Rayon Noils . . Staple Fibre

ANDREW K. HENRY

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U. S. BINDING

We make a Specialty of Binding and Narrow Fabrics

TRADE MARK

Manufacturers of

Tapes, Bindings and Narrow Fabrics

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CRANSTON WORSTED MILLS
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Mohair
Worsted and
Novelty Yarns

Now—The Bristol, R. I., Plant of the
COLLINS & AIKMAN CORP.

NOVELTY-YARNS
For
WEAVERS-KNITTERS

MONTGOMERY
WINDSOR LOCKS, CONN.
Designers and Spinners of Novelty Yarns

EMPIRE CRAYONS
For Tracing Imperfections

You can trace imperfections to the responsible operative with EMPIRE Textile Mill Crayons. Made of soft grade chalk in 14 colors. Indispensable in textile mills. Send for Color Chart.
• Reg. U. S. Pat. Off.

★We also make Junior EMPIRE Textile Mill Crayons. Sticks are 3¼" long by 7/16", tapered to ⅜". Made of same high grade soft chalk as larger stocks.

THE AMERICAN CRAYON COMPANY
SANDUSKY, OHIO — NEW YORK CITY
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The Kent Mfg. Co.
Est. 1843
CLIFTON HEIGHTS
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French Spun Worsted Yarns and Woolen Goods

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WOONSOCKET, R. I.
Incorporated 1904

Fine Woolen and Merino Yarns

SELL DIRECT

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THOS. WOLSTENHOLME SONS & CO. INC.
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Yarns for all purposes
French and English Spun Worsted
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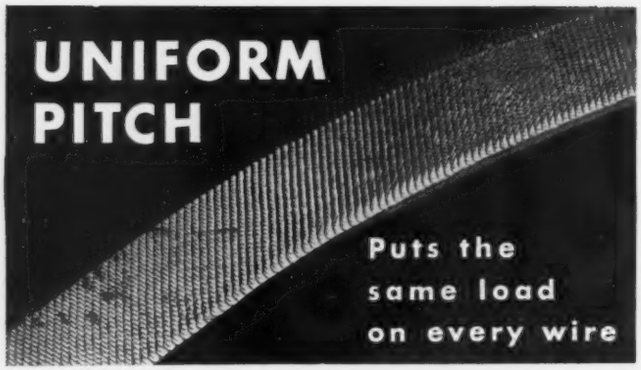
REG. U.S. PAT. OFF.
SHEETS AND PILLOW CASES

The Most Popular Sheets in America

Made Stronger—Wear Longer
Sell Faster

PEQUOT MILLS
Salem, Mass.

OSCAR HEINEMAN CORPORATION
RAW & THROWN SILK
ARMITAGE, FAIRFIELD and WASHTENAW AVENUES, CHICAGO



Wissco Special Foundation is of uniform structure throughout its entire length. It therefore holds each and every one of the wire staples in the exact same position. When the clothing receives the finish grinding, each wire is the same length and retains the same pitch. This results in equal work for every wire and no wire shelling out due to early fatigue of over-work.

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41 East 42nd St., New York, N. Y.

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Card and Napper **CLOTHING**

Colacet
it's NEW . . .
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Produces a high degree of water repellency on
COTTON
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OFFER GREATEST
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Built any size
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If you have a
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Earn a Manufacturing Profit
By Using the Best
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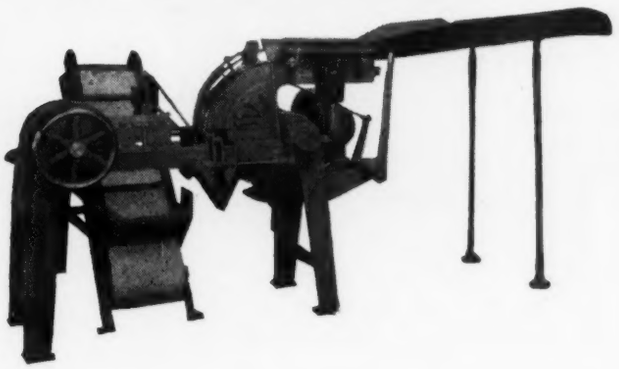

The Proof

We repeat below the results obtained by a few mills with the Type K Bobbin Stripper:

Dan River Cotton Mills, Danville, Va. 17 Type K machines replaced 13 Double-Head Utsman machines at an average net saving of $800 a year for each machine, a total annual saving of $13,612.

Cherokee Spinning Co., Knoxville, Tenn. Type K enables them to save $75.00 a week, or $3,750 a year, a net annual return of over 300% on the investment.

Tucapau Mills, Tucapau, S. C. With Type K they reduced their cost of cleaning 57,600 bobbins from $41.20 a week to $21.30 an annual saving of $995.

NOW, Even Greater Savings Possible

The above figures were obtained before the Bobbin Conveyor and the Bobbin Box Hoist were marketed. These accessories do away with the necessity of an assistant and save their cost in a short time. The Hoist lifts large boxes of uncleaned bobbins onto the Type K hopper, and the Conveyor carries cleaned bobbins away from the machine.

Perhaps you can save an appreciable sum by installing the Type K Bobbin Stripper and its accessories in your mill. We will gladly make an investigation for you, without obligation.

See Also Textile World Year Book and Catalog

the new* TYPE K *Bobbin Stripper

The Terrell Machine Co., Inc.

1200 North Church Street
CHARLOTTE, NORTH CAROLINA

MR. LUTHER PILLING, Danielson, Connecticut, *Representative for N. Y., N. J., Pa., New England States, and Canada*
GEO. THOMAS & CO., LTD., *Manchester, England, European Agents*

Stop Cloth Spoilage!

Losses from oil spot "seconds" if unchecked, can cut very deeply into profits. That's why 7 out of 10 mills changed from ordinary oil to NON-FLUID OIL —the drip-less, waste-less lubricant that stays in bearings and off goods.

Saving its own cost many times over by doing away with oil damage — NON-FLUID OIL makes still further savings. For it reduces lubricant and application cost by outlasting liquid oil 3 to 5 times.

Write today for free testing sample and bulletin, "Lubrication of Textile Machinery"

New York & New Jersey Lubricant Co.

Main Office:
292 Madison Ave. New York, N. Y.

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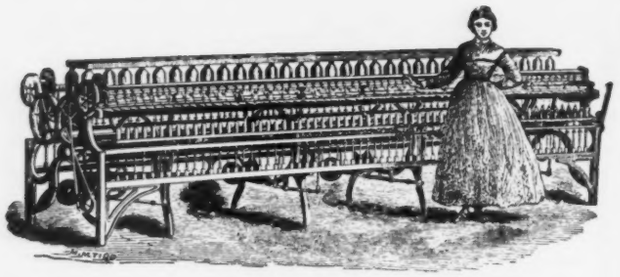
TRADE MARK REGISTERED
NON-FLUID OIL
IN U.S. PAT. OFFICE & FOREIGN COUNTRIES

MODERN TEXTILE LUBRICANT

Better Lubrication at Less Cost per Month



In '73, DIAMOND FINISH
Rings were part of the picture

The satisfactory performance of the early DIAMOND FINISH Rings led an increasing number of mills to adopt them each year. Specializing for 64 years in RINGS, we offer you the extra measure of satisfaction and value you have a right to expect from the world's largest ring plant. For uniformity, smooth running, long life — specify DIAMOND FINISH.

WHITINSVILLE (MASS.)

SPINNING DIAMOND FINISH **RING CO.**

Makers of Spinning and Twister Rings since 1873

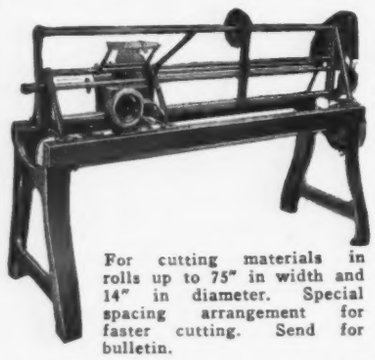
Southern Representative: H. ROSS BROCK, Lafayette, Georgia
Mid-West Representative: ALBERT R. BREEN, 80 E. Jackson Blvd., Chicago

Fig. 20

LANE BASKETS

Have always appealed
to the Textile Man
He Knows Staple
And appreciates
LANE DUCK

W. T. LANE & BROS., MFRS.
Poughkeepsie, N. Y.



Standard CUTTER

A modern machine for cloth rooms that have no money to waste!

For cutting materials in rolls up to 75" in width and 14" in diameter. Special spacing arrangement for faster cutting. Send for bulletin.

See Also Textile World YEAR BOOK and CATALOG

310 Center Street
FABRIC MACHINE CO., Bridgeport, Conn.

MURDOCK Bobbin Holders

Our latest patterned holder is built with heavy lugs with a cup washer which gives greater strength for holding automatic bobbins.

Automatic Bobbin

also the Regular Filling Bobbin having 1 3/16 inch head. If you are using automatic bobbins write for sample.

Write us regarding all matters pertaining to bobbin holders, as we make many kinds, and are sure we can be of help to you.

MURDOCK & GEB CO., Franklin, Mass.
Manufacturers of Bobbin Holders for Over Thirty Years

DIXON
LUBRICATING SADDLES

Used by Cotton Spinners since 1876
to do the following

1 INCREASE PRODUCTION
2 CUT COSTS
3 SAVE WEAR ON MACHINERY

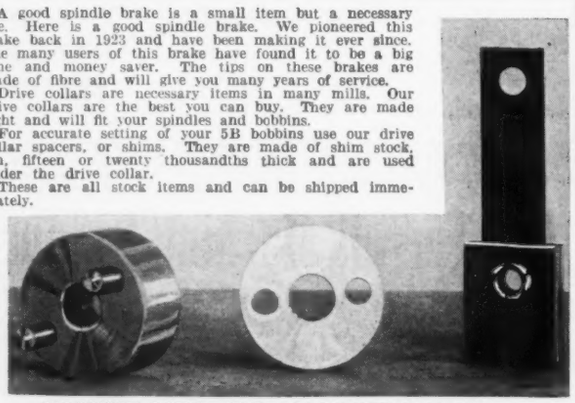
DIXON LUBRICATING SADDLE CO.
Established 1876
BRISTOL RHODE ISLAND

A good spindle brake is a small item but a necessary one. Here is a good spindle brake. We pioneered this brake back in 1923 and have been making it ever since. The many users of this brake have found it to be a big time and money saver. The tips on these brakes are made of fibre and will give you many years of service.

Drive collars are necessary items in many mills. Our drive collars are the best you can buy. They are made right and will fit your spindles and bobbins.

For accurate setting of your 5B bobbins use our drive collar spacers, or shims. They are made of shim stock, ten, fifteen or twenty thousandths thick and are used under the drive collar.

These are all stock items and can be shipped immediately.



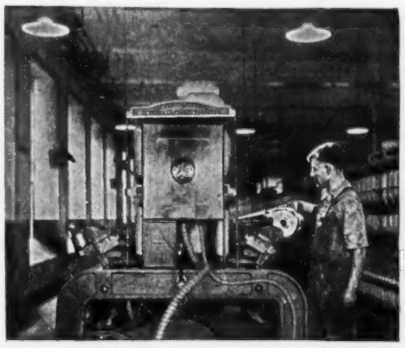
WAYNE MFG. CO., HONESDALE, PA.

Spots High Intensity Light Directly on Working Area

UNI-FOCAL LIGHTING UNIT

Reflecting light rays into a converging beam, the Fostoria Uni-Focal unit provides a degree of light intensity exceeding that of any other small reflector It is ideal for use where highly accurate seeing is required over a small working area. The Fostoria Supporting Arm permits instant adjustment of the light exactly as wanted. Write for catalog of Fostoria Localites in various types engineered for specific lighting requirements.

THE FOSTORIA PRESSED STEEL CORP.
FOSTORIA, OHIO



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BREUER'S BALL BEARING

TORNADO

PORTABLE ELECTRIC BLOWER

DOES THE WORK OF 15 MEN!

A large hosiery mill says: "The Tornado Blower is giving excellent satisfaction. One man can clean the motors and machinery in an hour where formerly 15 men were required. We consider the blower pays for itself in saving of seconds alone to say nothing of cleaning time."

The new Model 10 Tornado has tremendous power—46¼" waterlift—1 H.P. G.E. Ball Bearing Motor—no oiling.

It drives a 275 m.p.h. blast of clean, dry air into motors and intricate machine parts, quickly cleaning spindles, cams, looms, pulleys, belts, needles, rolls, frames and textile machines of all types. Can be used as blower, suction cleaner or insecticide sprayer. Fastest, safest, most economical method of cleaning. Removes lint and reduces fire hazard. Approved by Underwriters Laboratories.

Write today for details of free trial offer. No obligation.

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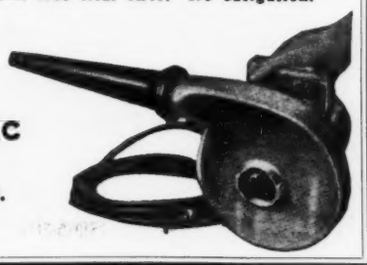

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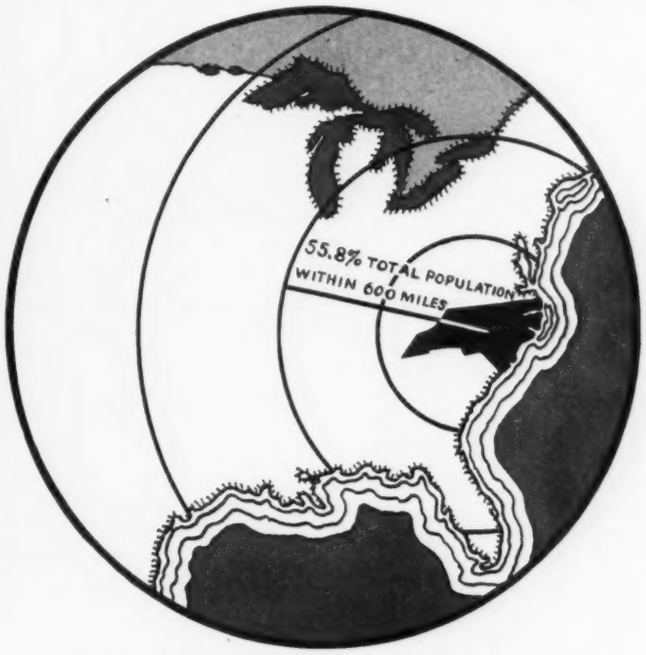
Outside the congested areas .... yet close to the richest markets



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LOW PRODUCTION COSTS
Plus
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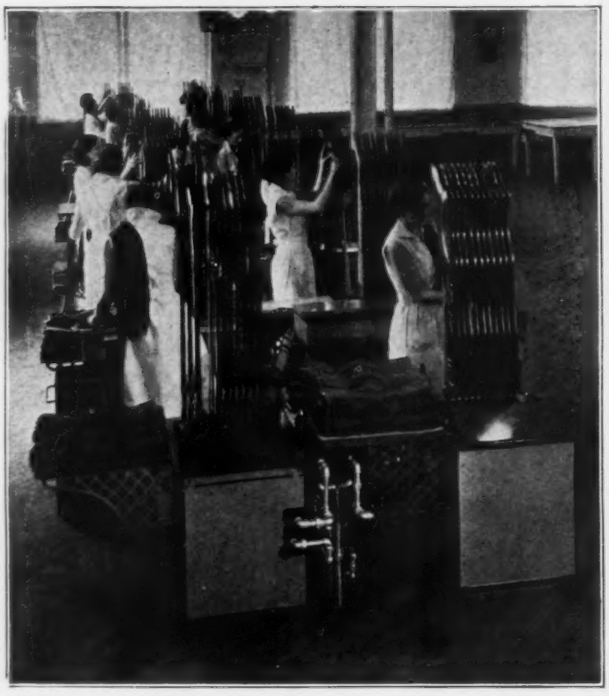
NORTH CAROLINA is the home of successful industry because here are all the advantages of low-cost production plus low distribution costs. Within a 600-mile radius is 55.8% of the country's population. Workers 99% native born, are intelligent, friendly and cooperative. The tax structure and State laws are constructive to business. Raw material supplies are convenient. Ample economical power. Transportation facilities include one of the finest highway systems in the country, 46 railroads, ocean ports. The year 'round moderate climate reduces capital investment, and makes lower production costs possible. Manufacturing in North Carolina is highly diversified and reaches a total of 1¼ billion dollars annually. Facts relating to your business will be supplied by an industrial engineer. Write Industrial Division, Department of Conservation & Development, Room 19, Raleigh, N. C.

***North* CAROLINA**
HOME OF SUCCESSFUL INDUSTRY

PARAMOUNT DUAL HEAT

1000 DOZENS DAILY

HOSIERY FINISHING



A PRODUCTION in excess of 1,000 dozens full fashioned ladies' hosiery is being finished daily on the 13 PARAMOUNT DUAL HEAT MACHINES operated in this mill during one eight-hour shift—and the character and quality of the work is incomparable since the PATENTED DUAL HEAT principle of drying is positive protection against "baking" delicate silk fabrics. Not only does the PARAMOUNT DUAL HEAT MACHINE contribute outstanding features of production and quality, but it represents—

1. Less investment per dozen
2. A minimum of floor space occupancy
3. Less power and steam consumption per dozen
4. Ideal room and working conditions
5. Less maintenance
6. Ease and comfort to the operator
7. Simplicity and durability of construction

Any one feature alone, of the numerous advantages which the PARAMOUNT DUAL HEAT MACHINE offers, will justify a change to this superior method of hosiery finishing.

WRITE FOR DETAILS
Furnished on SALE or RENTAL Plan.

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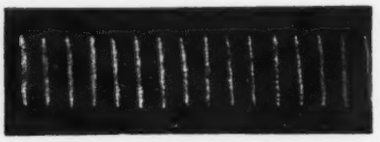
Perfect Butted Seams for Faster and Smoother Finishing

The Rayer & Lincoln Rotary Sewing and Marking Machine, fitted with the latest *Dinsmore Improved Positive Stripping Attachment* and showing the application of the *Merrow Butted Seaming Head.* Sews a strong, flat butted seam, trims the goods evenly with a narrow margin and automatically marks each piece as sewing is done. This machine will save its cost each year—you need it for modern, low-cost finishing. The Merrow Butted Seaming Head can be applied to your present machine—write for estimate of cost.



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For Cylinder, Full Fashioned, Warp and Rib Knitting Frames, also Narrowing, Stand, Transfer Points, and Welt Hooks for Full Fashioned Machines; Slides, Sinkers, Jacks, Guides or Flat Eyes, Sley and Milanese Points, Transfer Points or Quills, etc.

Sheet Metal Specialties to Order

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Better production and lower sewing costs are assured with a Willcox & Gibbs High-Speed Lockstitch Machine. Its speed—top oiling—rotary drive—visible stitch index—economical maintenance and simple adjustments are but a few outstanding features. The use of this machine is not alone confined to the fine apparel field but in every branch of the sewing industry requiring a single needle lockstitch machine, its record has won it an enviable position. Let us demonstrate this proven machine on your own work, without obligation.

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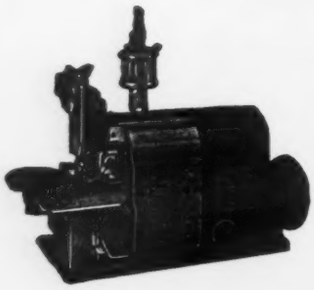

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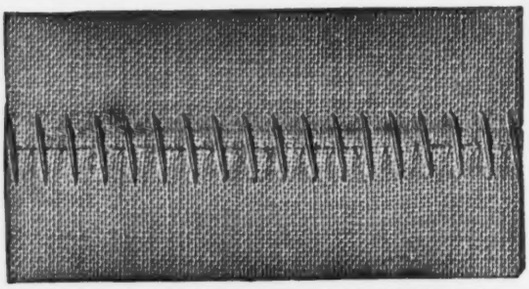
producing a butted seam to facilitate processing of textiles.

HIGH SPEED MACHINES
For Trimming and Overseaming, Hemming and Overedging



Butted Seam Produced on Merrow Style 60ABB Machine

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—200 VARIETIES FOR 200 PURPOSES—

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up-to-date

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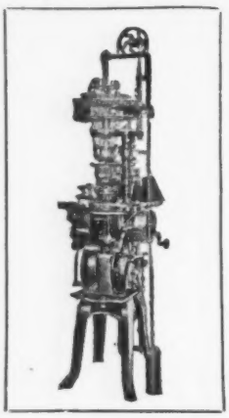
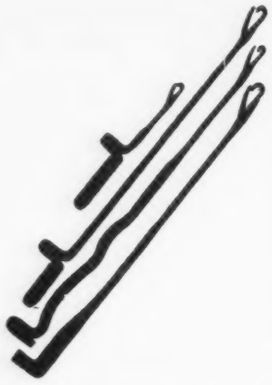
Economy makers





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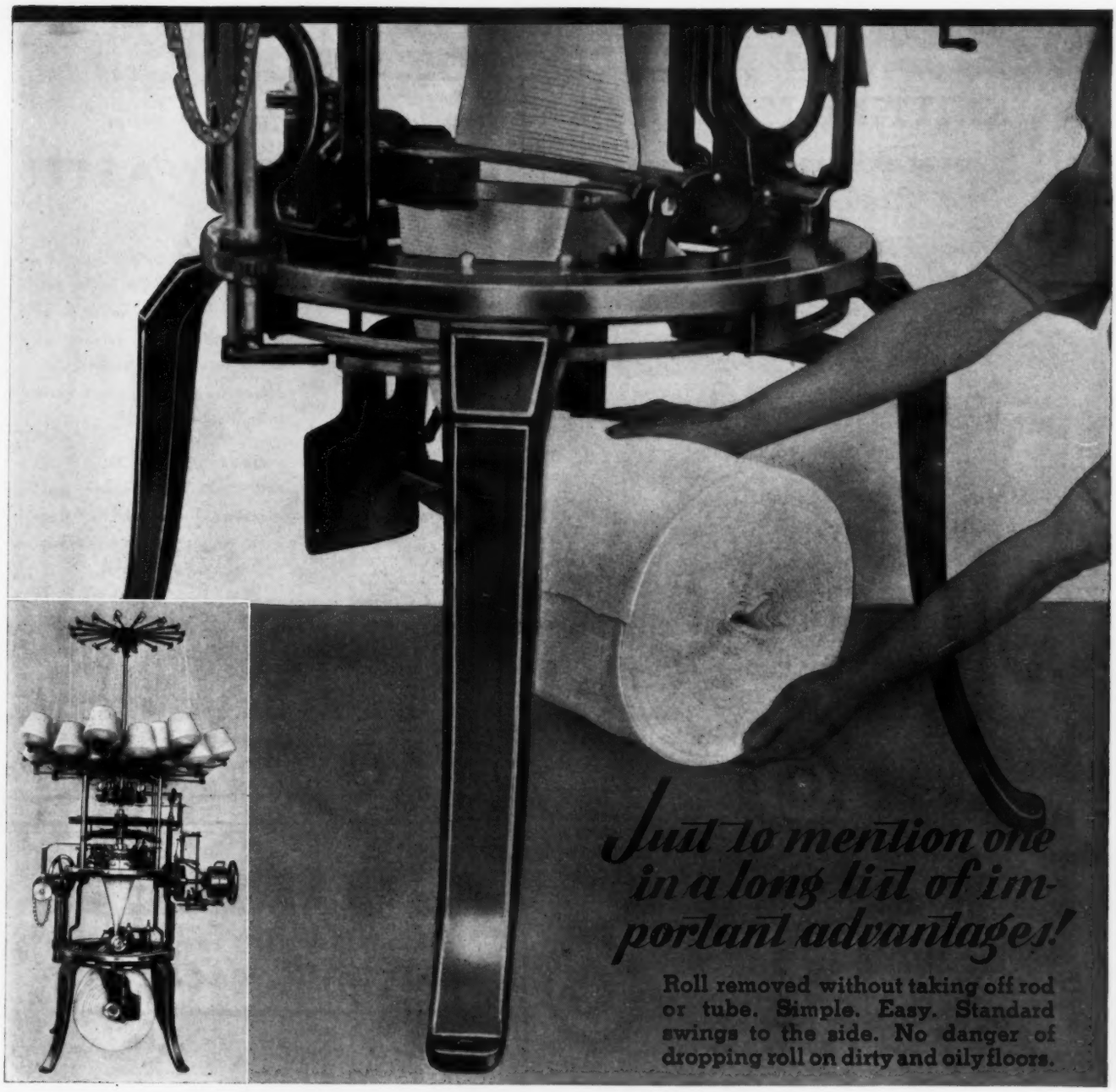
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Roll removed without taking off rod or tube. Simple. Easy. Standard swings to the side. No danger of dropping roll on dirty and oily floors.

The New WILDMAN Multiple Feed Rib Machine . . .

Of prime importance are the production economies and the product improvements which this machine makes possible. Among other advances, the 16 feed machine provides 100% greater production than an 8 feed machine . . . with a 50% saving of floor space . . . and at an increased capital investment of only 30% . . . power increase approximately 36%. The many mechanical perfections are all that you might expect in a machine as modern as this, manufactured under the Wildman name.

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meet the need for Speed—
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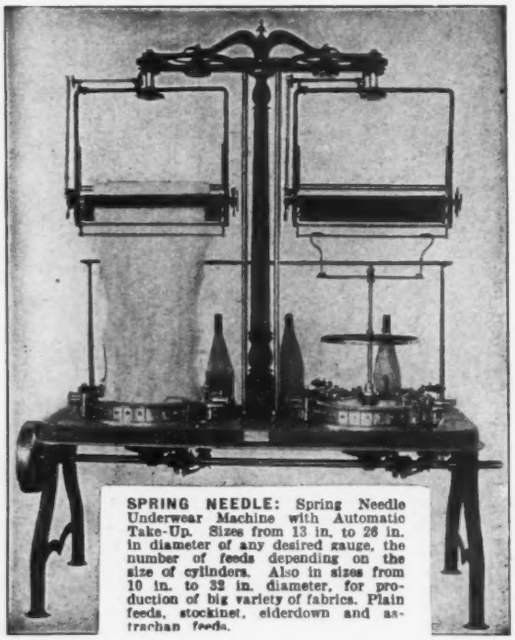

SPRING NEEDLE: Spring Needle Underwear Machine with Automatic Take-Up. Sizes from 13 in. to 26 in. in diameter of any desired gauge, the number of feeds depending on the size of cylinders. Also in sizes from 10 in. to 32 in. diameter, for production of big variety of fabrics. Plain feeds, stockinet, elderdown and astrachan feeds.

CRANE Knitting Machines meet the demands of rapidly changing patterns and styles. Their middle name is *versatility* . . . plus smooth, fast running operation that eliminates expensive stops. Among their exclusive features are Patented hardened Wing Burr Wheels and patented Thread Stop Motion. There's many a Knitting Mill in which batteries of Cranes are the mainstay of production.

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CRANE Improved Automatic
3 Colored

Improved Automatic 3 Colored Plain Stripes. Made in sizes from 7⅝ in. to 20⅝ in. inclusive, of any desired gauge. Measurements are back to back of cylinder needles. Knit fabrics for bathing suits, theatricals, athletic goods. Crawford stop motion applied when requested.

1870 **CRANE** 1937

MANUFACTURING CO.
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Spring Latch Needle
KNITTING MACHINERY

DOLLARS OF PROFIT . . .
hide in
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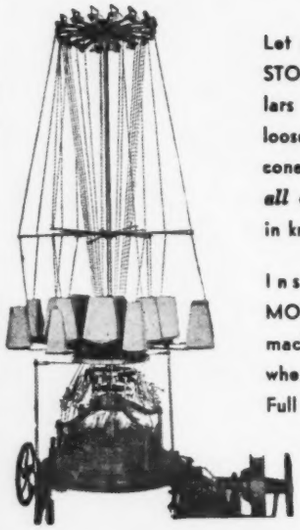

Let a CRAWFORD Electric STOPMOTION coin extra dollars of profit for you out of loose ends, slubs, catches on cones, broken needles, etc. . . . *all* causes of unnecessary waste in knitting.

Install CRAWFORD STOPMOTIONS on all your present machines, and specify them when ordering new equipment. Full details, on request.

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Spring Needle Circular Rib
KNITTING MACHINERY

Latch Needles
for **HOSIERY**
UNDERWEAR
OUTERWEAR

Spring Beard Needles
for **CIRCULAR**
FLAT
RIB TOP

All products guaranteed to give satisfaction.

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BRINTON 4-Feed Ribbers

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KLING-TOP SOCKS

Self-Supporting

For Men's Long and Short Socks
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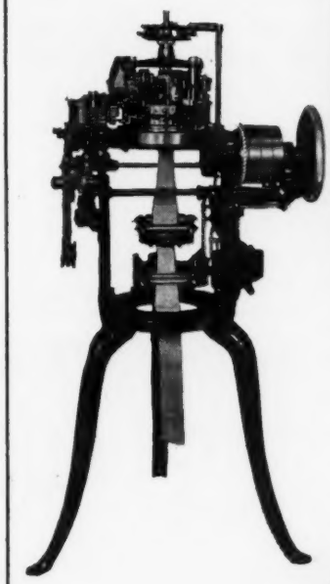

These BRINTONS knit on four feeds, laying in rubber every 4th course. When making the loose course and welt, the machine changes automatically — to single feed—giving an ideal transferring condition and making a perfect welt.

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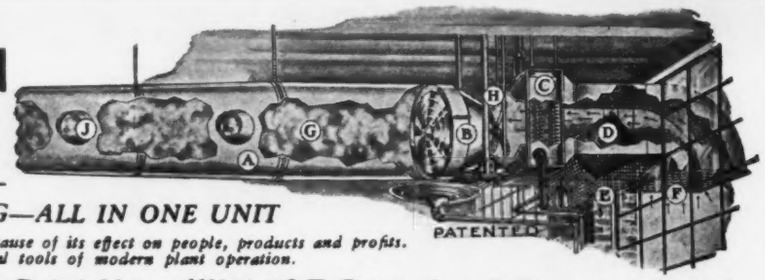

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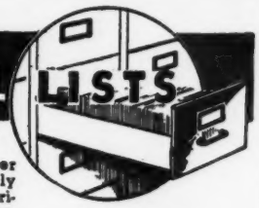

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for Quality Bleaching of Dyed Yarn Shirtings

Clear White Grounds and Bright Colors

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†Trade Mark
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Wilmington, Delaware

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with every assurance of a Prosperous New Year, too!

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liquid sulphur dioxide

★ **Eliminates danger of tendering**

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Normal and Concentrated

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ORGANIC CHEMICALS DEPARTMENT
DYESTUFFS DIVISION WILMINGTON, DELAWARE, U. S. A.

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Happy New Year

What a happy arrangement, to have Christmas just before New Year's Day! Christmas is the time to "square accounts" for the year so nearly gone. Disappointments and discouragements are swept away by the flood tide of Good Cheer at Christmas. It brings new Hope and Confidence for the New Year.

This festival of Good-Will gives us occasion to express gratitude for countless friendships, and for the many opportunities given us to serve. May the New Year bring Peace, Happiness and Abundance to All!

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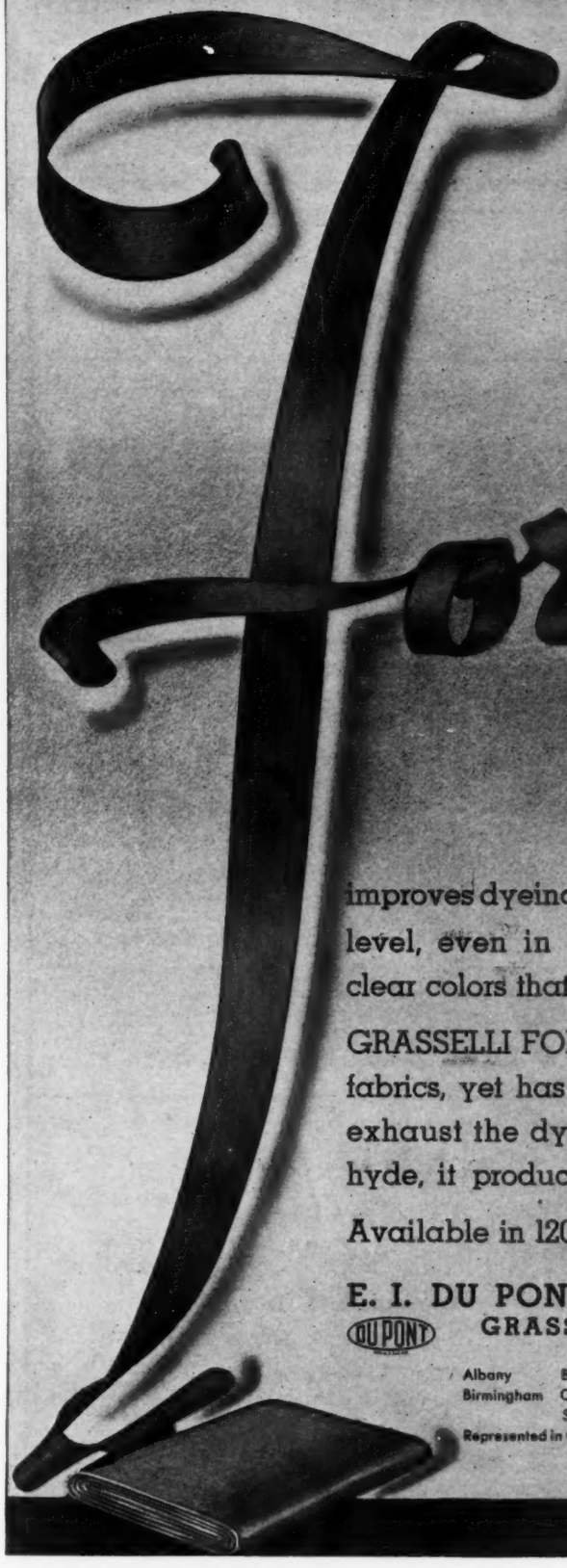

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Alums	Nitric Acid
Aqua Ammonia	Oxalic Acid
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Bi-Chromate of Soda	Silicate of Soda
Bi-Sulphite of Soda	Sulphate of Soda
Caustic Soda	Sulphite of Soda
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improves dyeing operations; colors brighter in shade, always level, even in cross dyeing. It's the fabrics of brilliant, clear colors that get the call in present day modern styling.

GRASSELLI FORMIC ACID will not tender the most delicate fabrics, yet has the efficient strength to almost completely exhaust the dye-bath. Being both an acid and an aldehyde, it produces results not obtainable with other acids.

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Have you inspected your tanks lately? An old tank, in poor condition can eat-up your profit dollars. A new tank, properly engineered and designed for modern processes is a good investment.

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Lappings and Blankets for Printing Machines.
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Everything for Textile Printers

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For forty years Caldwell Tanks have been famous in the textile industry because they're made by men who *know* both the mechanics and the chemistry of dyeing, bleaching and finishing . . . Caldwell Tanks are therefore built ideally resistant to corrosive chemicals—scientifically constructed for hard wear and long service. Let us prove it. *Write for catalog.*

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by John A. Stewart

Shrinkage Tables, for quick determination of ½ to 25% shrinkage, covering pieces ranging from 50 to 100 yards, available in handy, usable, reprint form. Price 25 cents per copy, $2.50 per dozen.

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Without putting yourself to any obligation, arrange now for a demonstration. May we hear from you?

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Branch Offices and Representatives in all Principal Cities of the U.S.

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TRADE MARK REG U.S. PAT OFF.
SPECIALIZED INDUSTRIAL CLEANING MATERIALS & METHODS

Laurel RAYON OILS

for Faster, Softer Yarns

Laurel Rayon Oils give your yarns the protective coating that prevents abrasion and consequent breakage. Highly penetrating, they increase the strength of the yarn without stiffening . . . resulting in softer, faster yarns . . . Order a trial lot.

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Diastafor
"SOLVES De-Sizing PROBLEMS"

Diastafor Department
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Satisfied Users Know That
The World's Finest
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TEXTILE CHEMIST with mill and sales experience. Good opportunity with a leading starch manufacturer. State age, experience, salary expected. P-11, Textile World, 330 West 42nd Street, New York City.

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FINISHER—Cotton and flat rayons. Printed and plain dyed. All weights, constructions, and finishes. Is free to make new connection. Last affiliation closed. Age 39. Textile school graduate. Best references. Will go anywhere. PW-7, Textile World, 330 West 42nd Street, New York City.

BLEACHERY OR PRINT works superintendent. Formerly with plant recently closed wants new connection. Technically trained. 19 years' experience all grades cottons and rayons. Printed, plain dyed. Will go anywhere. PW-8, Textile World, 330 West 42nd Street, New York City.

BOSS SPINNER. 16 years' experience in wool spinning including 1 year as factory mule erector. Prefer mill where good yarn making is essential. References. Go anywhere. PW-9, Textile World, 330 West 42nd Street, New York City.

COTTON PIECE GOODS. Position wanted as superintendent or assistant or office manager or other supervisory position. Fifteen years' experience. Thorough knowledge finishing cotton piece goods from grey room through packing room. PW-12, Textile World, 330 West 42nd Street, New York City.

BOSS WOOLEN CARDER desires immediate position. Experienced all machinery and stocks. Good reference. Steady and reliable. PW-13, Textile World, 330 West 42nd Street, New York City.

MASTER CARDER. Open for immediate engagement. First class man. PW-14, Textile World, 330 West 42nd Street, New York City.

SEWING MACHINE FIXER, A-1, and finishing department overseer. Wishes connection with well established knitted outerwear and underwear mfg. concern. Executive ability. 30 years' experience. References. PW-961, Textile World, 330 West 42nd Street, New York City.

SUPERINTENDENT for mill manufacturing flat goods or pile fabrics for the furniture trade. 25 years' experience in mill operation. Best reference. PW-970, Textile World, 330 West 42nd Street, New York City.

OVERSEER OF WOOL finishing. Understand finishing all grades of men and women wear, can do stock dyeing. Will stand rigid investigation as to character and ability. PW-994, Textile World, 330 West 42nd Street, New York City.

TEXTILE CHEMIST—B.T.C. degree Lowell textile-experienced in analytical and research. Knowledge German. Age 27, Christian, references. PW-996, Textile World, 330 West 42nd Street, New York City.

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TEXTILE SCHOOL GRADUATE three years woolen mill, three years rug and plush mill experience, experienced analyst piece rate time study keeping records inventory chemical test dyeing. Excellent references. PW-998, Textile World, 330 West 42nd St., New York City.

FIRST CLASS DYER on piece goods can handle acid union direct acetate and bathing suits, colors, 15 years' experience. Married, age 37. Best references. PW-17, Textile World, 330 West 42nd Street, New York City.

WANTED

WANTED—Yarn ball winding machine. W-16, Textile World, 520 No. Michigan Ave., Chicago, Ill.

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AGENT WANTED
Important Decorative Stuff Printers of Germany
producing all kinds of fabrics; want well introduced agent for the competent clientele, particularly department stores.
Please apply to Akl. 11763 c/o ALA
Berlin W 35, Germany

Equipment Wanted Advertisements
See page 190

CAPITAL WANTED
Partner or otherwise to operate finishing plant for cotton piece goods dyeing and printing. Central location. Unorganized help.
State in first letter amount you will invest and previous experience. References exchanged. Reliable party.
BO-15, Textile World
330 West 42nd St., New York City

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To Manufacture confined women's wear woolens to be sold direct to us.
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330 West 42nd St., New York City

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FINISHING PLANT
Equipped with machinery for bleaching, dyeing, printing and finishing cotton cloth. Will cooperate with responsible parties. Non-union labor. Financial ability, previous experience and references required in first letter. Good opportunity.
FR-987, Textile World
330 West 42nd St., New York City

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WE PAY CASH!
For Surplus or Odd Lots of Yarn
(Any Form Dyed or Undyed)
QUANTITY NO OBJECT
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YARNS WANTED
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THIS EQUIPMENT IS **PRICED RIGHT—IS RIGHT—** INSURE GREATER PROFITS FOR '38—SAVE ON THE FIRST COST, TOO.

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1—Bywater Make 36 spindle Twine & Cord Polishing Machine
20—Universal #50 Winders
1—4 spindle brand new special type Balling Machine which winds up to 20 lb. balls.
4—Wardwell Make 16 carrier Wire Braiders
1—30 spindle Foster Make Tubing Machine which winds on to a 10x10½" package.
1—20 spindle Foster Make Winding Machine which winds from skeins on to 6" tubes, 10 spindles on each side
12—American Insulated Make 20 spindle serving, insulating, or wrapping machines
2—Hanking Machines.
2—Textile Make 20 spindle doubling machines
6—Silver & Gay Make Balling Machines
12—Oswald Lever Make 18 spindle bottle bobbin winders from skeins to bottle
1—Kastrinsky Make 36" Calander Machine with motor and blower and individual motor drive
1—62 spindle Sipp Make Winding Machine with individual motor drive
150—Shoe Lace Braiding Machines, 44 & 32 Carrier. Complete unit $6000.
4—New England Butt Make Armored Cable Machines
2—Universal #50—6 spindle Tube Winders with 4 way attachments
1600—Braiding Machines for Sash Cord, Clothesline, Fishline, Venetian Blind Cords, etc.
1—12 Spindle Amer. Insulated Make serving machine.
1200—Elastic Braiding Machines for making every conceivable size of elastic and non-elastic braids, and trimmings.
55—Humidifiers with motors attached — Southworth Make. FOR QUICK SALE — $25.00 EACH IN LOTS OF SIX OR MORE.

Robert Solomon & Co., Inc.

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13-16 Park Row **New York, N. Y.**

We buy your Idle Equipment for cash.

FOR SALE

1—**Saco-Lowell Twister,** 4" Ring, 5" gauge, 144 Spindles, tape drive, 1317 model.
1—**Howard & Bullough Twister,** 4½" Rings, 5½" gauge, 108 Spindles, 1925 model.
15—**Saco-Lowell Twisters,** 1928 model, 5½" Rings, 7" gauge, 100 Spindles each.
1—**Curtis & Marble Double Doubler,** 108" to 25", with Foxwell Guides, 1930 model.
2—**Curtis & Marble Folders,** one and one and a quarter yard folds, complete with bristol counter and feed rolls.
3—**Elliott & Hall Folders,** 40", 1¼ yard fold.
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1—**Curtis & Marble Folder,** 1 to 1¼ yard for 72" goods.
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1—**Set of Butterworth Dry Cans,** 8'x10" length, 23" diameter, Tin.
1—**Set of Dry Cans for Chain Warps,** 142"x23½", 14 Cans, Horizontal Frames, Cans retinned.

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13—Universal #90 Winders
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3—Foster Model No. 12 Cone or Tube Winders
12—Atwood 3F Skein Winders
2—Atwood "S" Skein Winders
3—Atwood 4F Skein Winders
1—Sipp Skein Winder
1—Easton & Burnham Skein Winder
1—18 Spindle Oswald Lever Bottle Bobbin Winder
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1—48 Spindle Atwood 5B Spinner
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No. 50 **Universal Coners,** rebuilt to order, gear or belt gain

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Atwood **Silk Winders,** 70 spdls.

Altemus & Lever **Bottle Bobbin Winders**

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Atwood 4K **Reels**

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200—**Lever Bobbins** 4½"x10"

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10—Model 30 Foster **Winders** 100 spdls.

2—No. 50 Univ. Jumbo **Cones,** slow start

1—Quiller for **Wrap Hosiery Quills**

Ambler Textile Machinery Co.
S. E. Cor. Bodine & York Sts., Philadelphia, Pa.

Make yourself a XMAS PRESENT of needed Textile Equipment

Maybe "there ain't no Santa Claus"—but there's M.L.C. Service, M.L.C. contacts, M.L.C. experience, all geared to comb the textile used machinery field and produce exactly what you want when you want it, at perhaps under the price you planned to pay. Depend upon it!

—and speaking of LIQUIDATIONS

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From the M. L. C. Xmas Tree

2—15 ft. **Dye Becks**
1—43" **Silk Callender, 3R.**
1—60" **Morrison Quetch**
1—60" **Morrison Palmer Unit**
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2—48" **Tolhurst Extractors**
3—60" **Kenyon Chinchilla Mchs.**
1—90" **Woonsocket 36 R., D.A. Napper**
35—92" **C&K 2x1 Auto. Looms**
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96—40" **Draper Mod. E Looms**
1—**Starch Mangle,** 47" face
252—**Model E** 40" **Looms.**
Order No. over 3500.

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33 West 42nd Street, New York City, N. Y.

Tel. PEnnsylvania 6-8014

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8—Cooper Spring Needle, 18"—19"—20"—22".

4—Wildman—Assorted sizes for lacing and belting.

1—Jacquard, Phila. 18"—12 cut—3 color.

2—Flat Bed for webbing, 14"—20".

1—Lebocey 19"—2 color plaiting.

1—Foster, Cone Winder, 30 end.

THE OCEAN BATHING SUIT CO.

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Throwing Machinery

16—Double Deck Spinners: 4¼" space, 196 spindles, 13/16 inch whorl, belt drive.
10—5-B Spinners: 17'8" motorized, 4" space, 6 thread, 104 swing spindle, 2" single feed roll.
10—Winders: 80 spindles, Colonial, 6 11/16 space.
ALL ATWOOD MACHINERY AND MOTORS. EXCELLENT CONDITION.
5000 Stainless Steel 2¾ inch head bobbins: 18% chrome, hollow gudgeons, Cloverleaf.

FS-980, Textile World
330 West 42nd St., New York City

SHAPED GIRDLES AND RUBBER KNITTING UNIT

A thoroughly efficient manufacturing unit for production of shaped girdles and rubber knitting all in excellent condition consisting of 15 Wildman knitting machines with rubber attachments, sizes as follows:

3—11" 4—13" 2—15"
4—12" 2—14"

with 12 cut cylinders, also extra 8 cut cylinders, 2—24 end Oswald Lever Winders rebuilt for winding rubber, and 2—6 end winders for winding skein rubber for inlays and 10 Merrow machines for overseaming edges. Would prefer to sell in one lot, no dealers.

FS-999, Textile World
330 West 42nd St., New York City

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Knitters: Ribbers: Loopers:
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Send for Bulletin No. 121
Special attention to export trade

C. M. FRENCH
Commercial Trust Bldg., Philadelphia, Pa.

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28 cut—18 inch—8 feed—In excellent condition—Now running

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Boilers 100—200—400—600—1200 HP B&W.
1 yd. Northwest Cat. Gas Crane 40' Boom.
25 Ton American Locomotive Crane.
40 ton Baldwin S.T. Std. Ga. Locomotive.
2 Complete Coal Pulverizing Plants.
240 KW, 300 KW & 400 KW Diesel Units.
2500 GPM Scaife Water Softener.
¾ yd., 1 yd., 1½ yd. Clam Shell Buckets.

R. C. STANHOPE, INC.
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1—B-C Model K Portable Warp Tying-in Machine
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60—Whitin 40" Cards, 12" collers
160—42" Draper Automatic Looms
1—Hygrolit Package Yarn Conditioning Machine
14—AMCO Automatic Humidity Controls
16—Bahnson Humidifiers
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54"-56"-60"-62"-64" REED SPACE

EQUIPPED WITH 20 or 25 HARNESS
DOBBY or GEM HEAD
SINGLE or DOUBLE MULTIPLIERS
BELT or MOTOR DRIVEN
Any Quantity of Looms You Require
All Looms Reconditioned and Guaranteed Subject to Prior Sale

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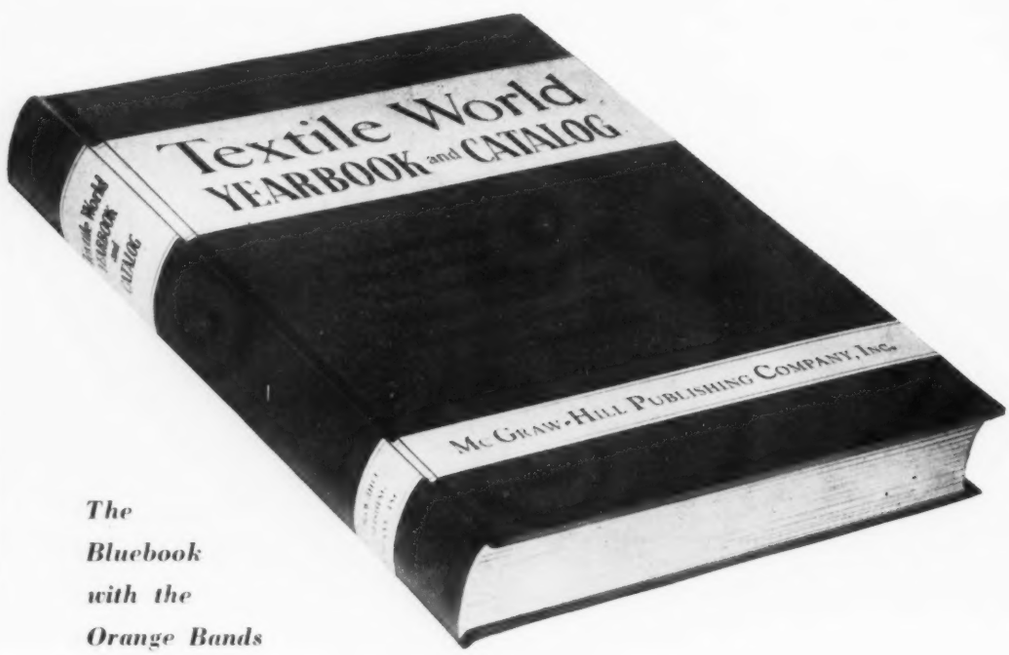
**From the same letter*

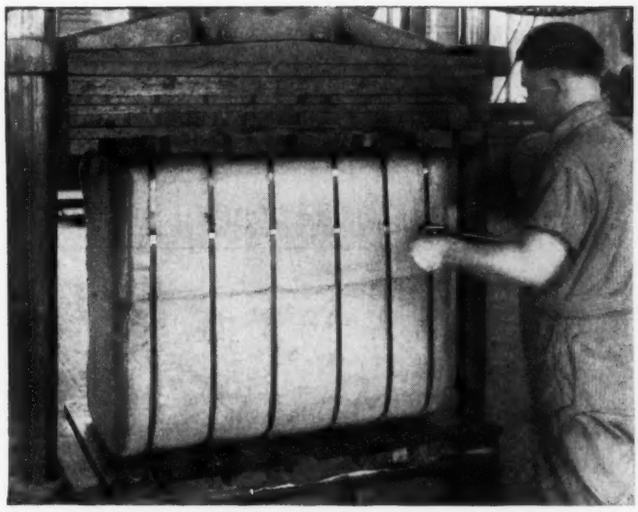
"When we received our first Yearbook a good many years ago, we thought it could not be beat; and in locating machines we wanted it was just a case of consulting the Yearbook. Today you have added so many features . . that now hardly a day goes past but we have some use or other for the book.
"Kindly accept our many thanks."

(Name and mill affiliation on request)



The Bluebook with the Orange Bands

150 to 1



No bale tie is any stronger than its sealed joint.

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Here are a few reasons why many mills specify the Stanley Bale Tie System:

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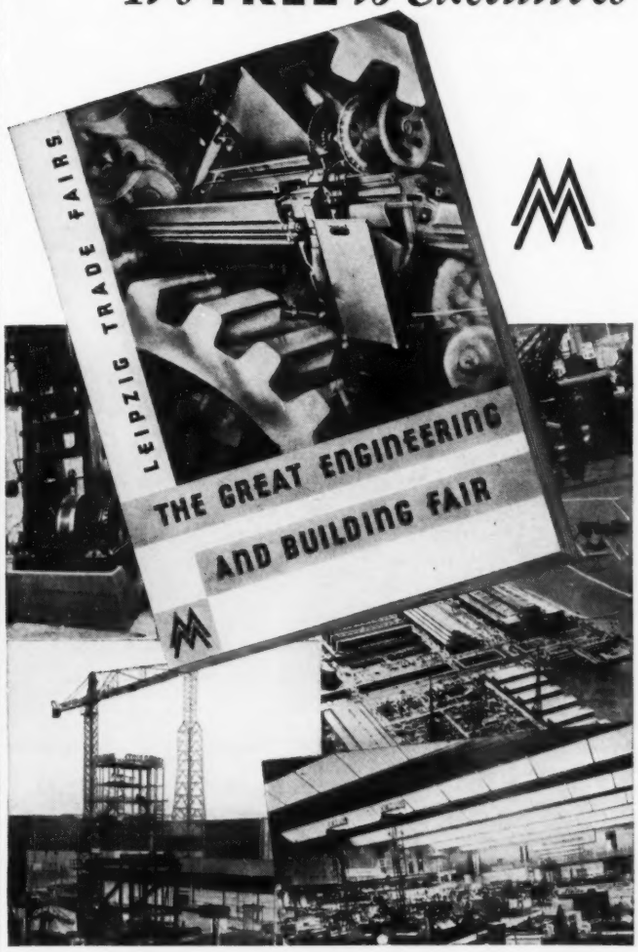

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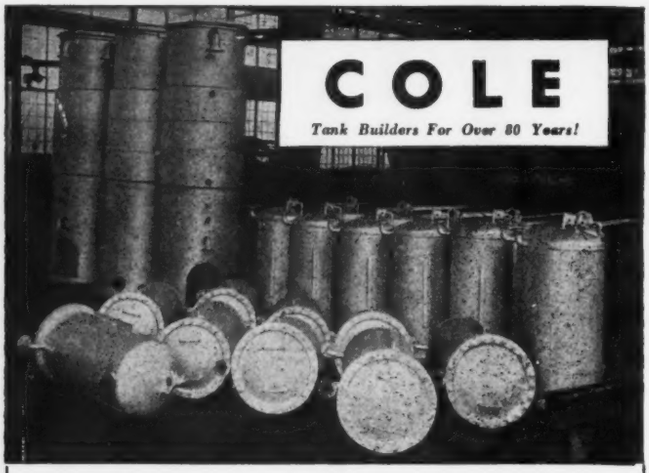

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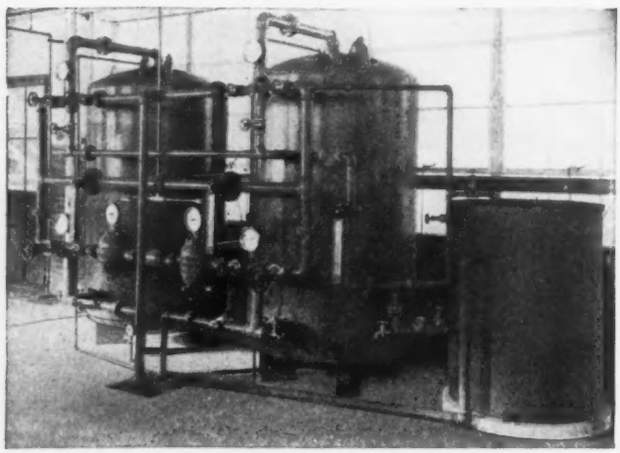

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BECAUSE industrial relations have a direct bearing on profit margins, forward-looking textile men are constantly on the lookout for ways to improve their industrial relations.

To keep the entire industry advised—to bring mill men everywhere up-to-date on the experiences of others, TEXTILE WORLD will key the editorial content of its Annual Review & Forecast Number (to be published February 28th) to the "Industrial Relations" theme.

This is an issue you will want not only to read thoroughly but to add to your data on this important subject for frequent future reference.

Textile World

These Modern, HIGH-SPEED Machines
set *new records* for Economy and Production

There is nothing imaginary about the Savings in time, labor and operating costs effected by the NEW "HURRICANE" Dryers. The Finish is also greatly improved. The results are amazing but real, as vouched for by many leading Manufacturers and Finishers.

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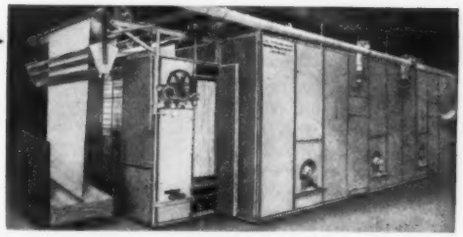
recently installed in a leading plant to replace 4 old machines, turns out 25 yds. of cotton plush per minute, as against 6 yds. from one of their old machines. An increase of over 316% in production! Write for interesting data on other installations.



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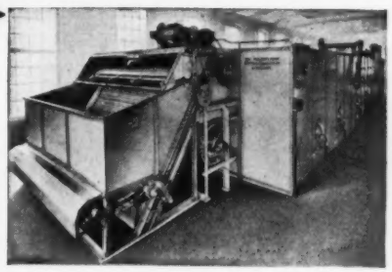
in another large plant, has more than doubled the capacity in the same floor space formerly occupied by the previous machine, and also improved the Quality of the product. New Turning Poles eliminate wrinkles and creases. The ideal Dryer for crepes, pile fabrics, knit goods, etc., — for SHRINKING wool and cotton cloth, — also for CREASE-PROOFING.



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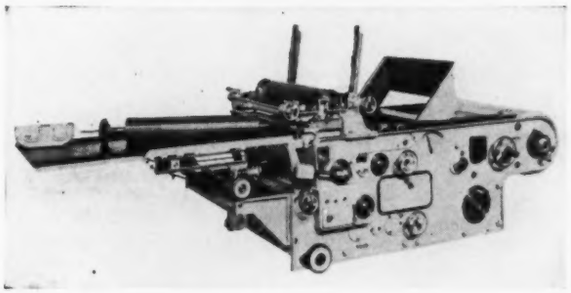
installed in a leading plant manufacturing hair cloth, has speeded the old production of less than 1200 lbs. per hour to 2500 lbs.! 100% more output without additional labor!

Write for facts and figures on actual Savings effected by "HURRICANE" Drying and Finishing Machinery. Let us Prove to you that these machines soon Pay for Themselves.

THE PHILADELPHIA DRYING MACHINERY CO.
3351 Stokley Street, Philadelphia, Pa.
DRYERS for ALL Textiles from Raw Stock to Finished Fabrics

LEWELLEN



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AUTOMATIC ELECTRICAL CONTROLS

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LEWELLEN MFG. CO.
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Not only our opinion . . but *THEIRS!*

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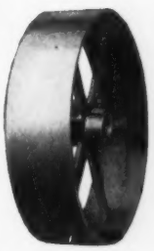

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Cast Iron
PULLEYS

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Modestly we agree—by going back to our original premise that Cast Iron pulleys are far superior. That has always been our contention . . . and it is borne out by the FACTS. Facts, incidentally, which are freely yours, to examine if you'll write—

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MEMBER: The Mechanical Power Engineering Associates

A GREAT NEW INDUSTRY GETS OFF ON THE RIGHT FOOT

THE air-conditioning industry has been a fertile field for misunderstandings and claims of unfair practice. Almost any device for humidifying a room or setting air in motion has at some time or other been labeled "air-conditioning." So many conflicting complaints had been presented to the National Better Business Bureau that it shouldered the job of organizing opinions and information from trade and scientific sources concerning the use of the term "air-contioning."

Architects, manufacturers, ventilating engineers and others collaborated and agreed in the view that *air-conditioning* does have a definite scientific meaning and cannot be used loosely in advertising. In November 1935, the Bureau's bulletin, defining the term and recommending minimum requirements, received wide publicity. Since then the Bureau has been successful in many cases in gaining the cooperation of appliance manufacturers concerning the observance of these recommendations.

Recently the air-conditioning industry has made use of the Bureau's definition, in conjunction with those of United States government departments, and beyond doubt the Bureau's initiative helped to stabilize the term *air-conditioning* for both trade and public.

• • •

This is the type of service the Bureau is uniquely equipped to perform in any specific field of business. Not always is it called in while an industry is still young. Not always is the issue as clean-cut as in this instance. But almost invariably the parties to a controversy in business ethics or unfair practice are afterwards glad they availed themselves of the Bureau's experience and background. The Bureau usually smooths matters out without publicity or prosecution. It is a non-profit organization and its services are available to members and non-members alike, but its support comes from members' contributions. Without obligation, write for Booklet "How to Use the National Better Business Bureau." Use coupon for your convenience.

NATIONAL BETTER BUSINESS BUREAU, INC.

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Please send me a copy of "How to Use the National Better Business Bureau."

NAME..... FIRM NAME.....

ADDRESS..... CITY..... STATE.....

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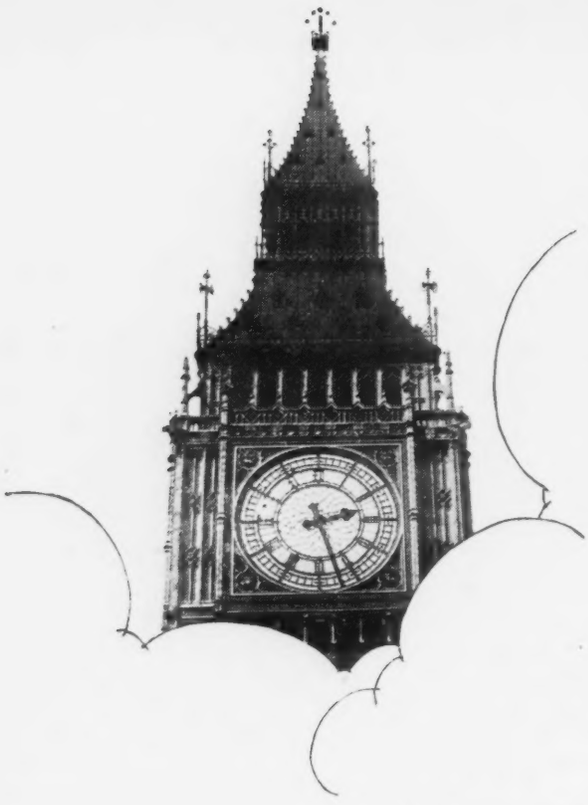

"New time always! Old time we cannot keep. Time does not become sacred to us until we have lived it, until it has passed over us and taken with it a part of ourselves."—JOHN BURROUGHS.

A FEW more turns around the clock and another year will join the other 38 that form the background of our business experience.

Guided by the lessons learned in 39 years of service to the textile industry, SONOCO faces the new year —and the future, aggressively pursuing further scientific development of products that will keep abreast of textile needs.

SONOCO 39 YEARS

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